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SELECTED PAPERS.

Experiments and Observations on the Serum of the Blood.

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[From the Medico-Chirurgical Transactions, Vol. II.]

IN a paper which was published in the Transactions of the Medical and Chirurgical Society of London,* I maintained the opinion, that blood does not contain any constituent to which the name of Jelly or Gelatine can be properly applied. As this opinion was in opposition to the highest chemical authorities,† I could not expect it to be received without opposition, more especially as the experiments which were adduced in its favour, were both few in number, and very simple in their nature. Since that time I have examined the subject with more attention, and have endeavoured to vary the experiments in such a way, as to meet the objections to which the former were liable. It may be necessary to premise, that by the term *Jelly*, I mean that animal substance which possesses the characteristic property of being liquefied by heat, and becoming concrete by cold, and which forms with tan a compound that is insoluble in water.

* Medico-Chirurgical Trans. Vol i. p. 47.

† See the references in the paper referred to, p. 69.

By the modern authors who have written upon the blood, it is asserted, that when serum is coagulated by heat, the albuminous part alone is rendered solid, and that there may be separated from the coagulated albumen a fluid, which holds a quantity of jelly in solution. To this fluid, which appears first to have been distinctly recognized by Dr. Butt, Cullen restricted the term of serosity, which had been previously applied by Senac to the serum at large; MM. Fourcroy and Vauquelin first announced the existence of jelly in it, MM. Parmentier and Deyeux farther developed the supposed discovery, and since that time its existence has never been called in question. The serosity may be procured either by permitting it to ooze spontaneously from coagulated serum cut into small pieces, or more readily, by digesting the coagulated serum in boiling water. If the quantity of water employed be not more than the bulk of the serum, the fluid is very nearly the same as obtained by either of these means; for, in consequence of the serosity being lodged in minute cells dispersed through the serum, which are penetrated by the boiling water, it is by this operation more completely separated from the albumen. The solid contents of the serosity generally amount to about $\frac{1}{10}$ of the weight of the fluid, but in different specimens I have found them to vary from $\frac{1}{40}$ to $\frac{1}{70}$. It is slightly opake, its taste is saline, and it has an odour which has always appeared to me specific, and different from that of serum; it is generally neither acid nor alkaline, but occasionally I have thought that I could perceive in it the slightest degree of alkalescency.* When the serosity has the oxymuriate of mercury added to it, or when it is subjected to the heat of boiling water, no effect is produced, and I never could perceive that the slight degree of opacity which it naturally possesses was increased; but when the two operations are united, when the oxymuriate of mercury is added, and the mixture is kept for some time at the boiling temperature, there is a manifest increase of opacity, and a precipitate is formed. An infusion of tan always increases the opacity of the serosity, and a precipi-

* The alkaline test which I generally employ is turmeric; it possesses the advantage of not being injured by keeping, and it is obviously affected by a solution containing 1-2000th part of its weight of potash.

tate very gradually subsides from it.* When serosity has been exposed to the atmosphere for some days, it becomes more opake, a flaky substance separates from it, and its odour is extremely nauseous; in this state it exhibits an excess of alkali. I have never been able to detect any degree of acidity during its spontaneous decomposition, although this has been asserted to be the case.† When the serosity is evaporated by a gentle heat, it gradually becomes less clear, small flakes are formed in it, and at length a semitransparent substance is left, of a membranous appearance, which evidently consists, at least for the most part, of animal matter. By exposure to a greater heat it grows brown, emits a peculiar smell, and at length becomes charred. If the serosity, after being evaporated to dryness, be digested in boiling water, it is re-dissolved, except a small quantity of flaky matter, which floats in it, and which seems incapable of solution. When the solid contents of the serosity, after having been evaporated, and reduced to a half charred state, are digested in boiling water, the fluid is rendered brown, and, upon evaporation, a brown mass is left, which contains small cubical crystals of the muriate of soda.‡ If the evaporation of the serosity be stopped during the process, and the substance cooled, it does not exhibit any appearance of gelatiniza-

* The preparation of tan which I have found the most convenient for the experiments, is formed by the extract of rhatany. If the rhatany be digested in hot water, and filtered after it becomes cold, a solution is formed of nearly uniform strength, and which remains a considerable time without moulding or undergoing any spontaneous change. In both these respects it is superior either to catechu or to galls.

† I suspect the generation of acid in serosity must be classed among those numerous occurrences, where the experimentalist has been guided more by hypothesis than by observation. When serosity had been announced to be a gelatinous fluid, it followed of course that it *must* evolve an acid during its spontaneous decomposition. See Brugmans, as quoted in Thompson's Fourcroy, Vol. III. p. 272.

‡ It was always supposed that the muriatic acid in serum was combined with soda, until Dr. Pearson lately endeavoured to prove it to be potash. My experiments induce me to adhere to the old opinion, as I never found the cubical crystals mentioned above to produce any precipitate with the nitro-muriate of platina. The addition of oxalic acid to serum shows that it contains a minute quantity of lime, and it is said that the phosphate of soda also exists in it.

tion. Acetate of lead and nitrate of silver both throw down copious precipitates from the serosity.

From these experiments we may conclude, that serosity consists of water holding in solution nearly $\frac{1}{10}$ of its weight of an animal substance, together with a small quantity of the muriate of soda. Of this animal matter a portion is albumen; the exact quantity cannot be ascertained, because it is not practicable to collect the precipitate which is occasioned by boiling the serosity with the oxymuriate of mercury; but from comparing the effects with what takes place, when a known quantity of albumen ovi is added to water, we may conclude that the serosity cannot contain more than $\frac{1}{1000}$ of its weight of albumen. That the remaining animal matter in serosity is not jelly, may be at once inferred from the consideration, that if water contains only $\frac{1}{100}$ of its weight of jelly, it becomes concrete at the usual temperature of the atmosphere; whereas the serosity is perfectly fluid, although the animal matter in it is not much less than double that quantity. In order to ascertain whether there was any portion of jelly in serosity, the following experiments were tried. To a quantity of serum, $\frac{1}{100}$ of its weight of jelly, liquefied by heat, was added, and upon cooling the mixture, it became quite concrete. To 94 grs. of serosity, 6 grs. of a solution of jelly, containing $\frac{1}{20}$ of a grain of solid jelly was added, so that the jelly would form $\frac{1}{2000}$ part of the weight of the whole fluid. This was exposed to a gentle heat, and when it was nearly evaporated, upon being cooled, a very obvious degree of gelatinization took place. One fact still remained to be explained, which seemed to be the only one that opposed my conclusion, and this was the effect of tan on the serosity. The precipitate that is produced when tan is added to serosity, has always been supposed to indicate the presence of jelly;* but tan, although it does not detect albumen as minutely as it does jelly, yet it produces an obvious effect in a fluid that contains only

* In the most recent analyses of animal fluids, it has been assumed as a sufficient proof of the presence of jelly, that a precipitate is produced by tan. From this circumstance alone M. Nicolas concludes that the aqueous humour of the eye contains jelly. Ann. Chim. T. LIII. p. 310.

$\frac{1}{1000}$ of its weight of albumen.* To prove that the action of tan on serosity depends upon the small quantity of albumen still remaining in it, a portion of serum was diluted with 4 times its bulk of water, to this was added $\frac{1}{4}$ of its bulk of a saturated solution of the oxymuriate of mercury, and the mixture was kept for some time at the boiling temperature; a hard dense precipitate was formed, the fluid was left transparent, and now it produced no precipitate with the solution of tan. Against this experiment it might be urged, that although the oxymuriate of mercury has no action upon jelly alone, yet that when a small quantity of jelly is united to a large proportion of albumen, the compound may be precipitated by the oxymuriate. To examine how far this objection was valid, I added to a portion of serum about $\frac{1}{1000}$ of its weight of jelly, and then boiled it with the oxymuriate of mercury. A precipitate was formed of the usual appearance; but as the fluid cooled, the jelly formed a distinct concretion, and did not appear to have been incorporated with the albumen, or affected by the oxymuriate of mercury. There was another obvious difference between the precipitates formed by tan in serosity and in jelly; the precipitate in the serosity is incoherent, it subsides very slowly, and can scarcely be separated from the fluid by a filtre; whereas the precipitate in a solution of jelly of the same strength is a hard dense substance, which almost immediately separates from the fluid, and may be collected in a distinct mass.

Conceiving it to be sufficiently established, that there is no jelly in serosity, the next object of inquiry was, whether the opinion be correct, that only a small part of the animal matter in it is albumen. For this purpose I examined the effects produced by the same re-agents upon serosity, and upon serum diluted with water, until its solid contents were equal, or even inferior in quantity to those of the serosity. A quantity of serum, which contained twelve per cent. of solid matter, was diluted with eleven times its bulk of water, so that its solid contents

* If to a quantity of water 1-120th of its bulk of serum be added, we shall have a mixture which contains about 1-1000th of its weight of solid albumen. Equal parts of this mixture and of the infusion of rhatany being added together, produce an immediate and very perceptible precipitation.

would be considerably less than that of the serosity, and the following comparative experiments were then performed. A boiling heat produced in the diluted serum a perceptible opacity, but in the serosity no effect. The same quantity of oxymuriate of mercury was added to both these fluids; it produced an evident precipitate in the diluted serum, but none in the serosity; when the boiling heat was applied to the two portions of fluid containing the oxymuriate of mercury, it produced in the diluted serum a distinct precipitate, which separated from the fluid and subsided; in the serosity there was a degree of opacity produced, but no distinct precipitate was formed. Even when this serum was still farther diluted, with three times its bulk of water, so that its solid contents could not have been 1-6th as much as those of the serosity, the joint effects of heat and the oxymuriate of mercury caused a greater degree of opacity. And there is a still more decided fact in favour of my opinion. If serum be boiled with such a quantity of the oxymuriate of mercury as to remove all the albumen, and to leave a slight excess of the oxymuriate, the least addition of albumen will cause a fresh precipitate; yet if the fluid be evaporated, a residuum is procured, which is evidently, in part, animal matter. I have noticed a difference between albumen and the animal matter in serosity with respect to their solubility in water. Coagulated albumen is perfectly insoluble, as is proved by the constitution of the serum: and if albumen be very slowly evaporated by a heat not sufficient to coagulate it, it is capable of being redissolved; whereas if it be dried by a heat in any considerable degree greater than that necessary for coagulation, it remains insoluble in water. As far as I have been able to ascertain the fact, with respect to the animal matter in serosity, it does not possess the property of being equally insoluble by being exposed to the same degree of heat. When serosity has been evaporated, the whole is not again soluble, but the insoluble portion I attribute to some remains of albumen, which we have been led, from other circumstances, to conclude still exists in it. The greater part however is soluble, and remains so even when the heat applied has been considerable enough to produce a commencement of carbonization. These facts I consider sufficient to warrant the conclusion, that the greatest part of the animal matter in serosity is not albumen. I shall not at present inquire into its properties, or into

the denomination which ought to be applied to it, as I propose to enter more fully into this investigation on some future opportunity. I shall conclude this paper with some detached observations respecting the serum.

The specific gravity of serum is generally stated at 1.027 or 1.028,* the original authority for which appears to have been Jurin; I have examined several specimens, and have always found it to be less; the average of my experiments is about 1.023. The proportion of the solid contents of the serum to the watery part, varies less than might have been supposed, from the varieties that we observe in the state of the blood. I have generally found the solid contents left by a slow evaporation to be pretty exactly 12 per cent.

Serum always exhibits marks of an uncombined alkali, the amount of which I have endeavoured to ascertain. After observing the effect that was produced by serum upon turmeric paper, I added a solution of potash, drop by drop, to a quantity of water, until it seemed to tinge the paper in an equal degree; when it was found that about $\frac{1}{1000}$ of the weight of the solution had been added to the water. The strength of the alkaline solution was such, that it was saturated by half its weight of sulphuric acid of the specific gravity of 1.76. To 240 grains of serum acetic acid was added, until there was a very slight excess of acidity; then to an equal bulk of water the same proportion of the alkaline solution was added, as was indicated by the last experiment, when it was found, that as much acetic acid was necessary to saturate this water as the 240 grains of serum. From these two experiments it appeared, that one ounce of the serum required for its saturation, as nearly as possible, one grain of the sulphuric acid. Acetic acid, 100 parts of which require for saturation 43 parts of pure potash, will cause an evident excess of acidity in 60 times its bulk of serum.

It is generally supposed that the alkali in serum is in the caustic state, and the following experiments seem to favour this opinion; although it must be acknowledged, that the smallness of the quantity renders it difficult to speak with absolute certainty upon the subject. To a quantity of serum, acetic acid

* See the Systems of Thomson and Murray, Henry's Epitome, and Aikin's and Parr's Dictionary.

was added, until there was a slight excess of acidity, but no effervescence could be observed. To another portion of serum, about $\frac{1}{100}$ of its weight of a solution of a carbonated alkali was added, and this was then supersaturated with acetic acid, when a number of very minute bubbles might be discerned rising through the fluid. A solution of jelly was formed of about the same degree of viscidity with serum, and to this a solution of the carbonate of potash was added, so as to make it equally alkaline; when this was neutralized by acetic acid an obvious effervescence was excited. As far as I could come to any certain conclusion respecting a point of so much minuteness, it did not appear that the alkali of serum became carbonated by being exposed to the atmosphere for a considerable length of time. Notwithstanding the alkalescency of the serum, the serosity scarcely ever exhibits any decisive marks of an uncombined alkali.*

In the experiments upon the serosity, I have assumed, that its solid contents principally consist of animal matter; there are, however, some saline substances in it, and it was important to ascertain the proportion which they bore to the whole. For this purpose a quantity of coagulated serum was cut into small pieces, and boiled with successive portions of water, until all the soluble matter seemed to be separated from it; these different portions of water were then evaporated, and the residuum was dried by a heat sufficient to reduce it to a half charred state. It was then digested in hot water, the fluid filtered, and again evaporated. The water was tinged brown, and as the evaporation proceeded, evidently shewed that it contained a considerable proportion of animal matter At length small cubical crystals were formed, which, when purified by a subsequent solution and crystallization, were found to be nearly in the proportion of $1\frac{1}{2}$ grain in one ounce of the entire serum.

* I speak of the serosity in its entire state, as procured in the manner mentioned in the beginning of this paper. When a considerable part of it has been evaporated, the residue I have found to be alkaline. We must therefore suppose, that there exists in serosity a very minute quantity of alkali, but commonly too little to be detected by turmeric; it must be less than 1-2000th of its weight, considerably less than that in the serum from which the serosity is procured.

The most remarkable and characteristic property of albumen is its coagulation by heat, and by different chemical substances, particularly by alcohol and by acids. No explanation of this phenomenon has been offered, which appears to me satisfactory, nor indeed does it seem easy to refer the operation of such different agents to any one principle. The hypothesis, which is by far the most ingenious, and which, from the authority of its supporters, claims every attention, was originally proposed by Dr. Thomson,* and afterwards more fully developed by Mr. Brande.† Mr. Brande adopted it in consequence of his discovery, that the negative extremity of the Galvanic apparatus has the power of coagulating albumen; an effect which he explains upon the principle, that the action consists simply in the abstraction of an alkali, which was before in combination with the albumen, and which preserved it in the liquid state. Uncoagulated albumen he therefore considers as essentially an alkaline solution, and that heat acts by causing some new disposition of the affinities, in consequence of which the alkali is transferred from the albumen to the water. Alcohol and the acids, he supposes, in like manner, produce their effect by combining with the alkali. But to this hypothesis there are, I conceive, insuperable objections. In the first place, although it is admitted that alkalies possess the property of dissolving albumen, yet for this purpose a quantity is necessary, very much greater than what we have reason to suppose exists in serum. If the affinities are so nicely balanced in the serum, that the mere application of heat can separate the alkali from the albumen, much more would it permit itself to be displaced by an acid; so that when a quantity of acid has been added, sufficient to produce an excess of acidity in the serum, we must conclude, that all the alkali has been neutralized. The above experiments show how very minute this quantity of alkali is, and how totally inadequate to produce the effects assigned to it. That the mere removal of the alkali from the albumen does not cause its coagulation, I think may be concluded, from the fact, that acetic acid may be added to the albumen, in more than 100 times the quantity necessary for saturation, without any appearance of coagulation taking place.

* Chemistry, v. 489. † Phil. Trans. 1809. p. 373.

This seems to prove that coagulation does not depend merely upon the abstraction of the alkali; and, I confess, appears to me quite decisive against the hypothesis of Mr. Brande. At the same time I acknowledge myself unable to substitute any other in its place, and therefore I content myself at present with expressing the fact, that the action of heat upon albumen is specific, unlike any other phenomenon, with which we are acquainted, and not capable of being referred to any general principle.

The operation of alcohol upon albumen I conceive to depend, in a great measure at least, upon its power of abstracting water from it. This opinion I ground upon the following circumstances. When albumen is only moderately diluted, the effect of this re-agent is greatly diminished, or even altogether destroyed. If we dilute serum with six times its bulk of water, the effect of alcohol is scarcely perceptible, while oxymuriate of mercury converts the fluid into a thick cream. If alcohol be poured into serum, its superior levity keeps it on the surface, and it immediately produces a coagulation in the upper stratum of the albumen; but if a quantity of water be added, the coagulum is instantly removed; and the same may be effected by exposing it to a gentle heat, when the alcohol is evaporated, and the serum is left in the same state as before the experiment. This circumstance proves that albumen, as coagulated by heat, is a very different substance from the coagulum that is formed by alcohol, and from this difference in the result we may infer, that the processes themselves are different in their nature.

The coagulation of albumen by sulphuric acid must, I conceive, likewise be referred, in some measure, to its affinity for water; because in this case, as in that of alcohol, if the serum be considerably diluted, it quickly loses the property of being coagulated by the acid, and a coagulum which has been formed may be re-dissolved, by the addition of a considerable quantity of water. If the serum be diluted with six times its bulk of water, no immediate effect takes place from the addition of sulphuric acid; and after serum has been coagulated by sulphuric acid, if a quantity of water be immediately added, and the mixture agitated, the coagulum is entirely re-dissolved, and the fluid is rendered transparent; but although the first effect of the acid be owing to the sudden abstraction of the watery part of

the serum, yet it seems that afterwards an union takes place between the acid and the albumen, for even in serum that is considerably diluted, a coagulum is gradually produced, which is insoluble.

The oxymuriate of mercury has been classed among the substances which coagulate albumen, yet strictly speaking, I should regard it rather as a precipitant than as a coagulator. It enters into a chemical union with albumen, and forms an insoluble substance which subsides from the fluid; it even acts so powerfully, as that when it is added to albumen, and heat is afterwards applied, it destroys the coagulum which would otherwise be formed, and entirely separates the water from the solid part of the serum. The following experiment is, I think, a decided proof that the oxymuriate of mercury forms a real chemical union with albumen. The oxymuriate was added to serum in such proportion as to separate all the albumen, and to leave the fluid transparent; an equal bulk of water had the same quantity of oxymuriate added, and to equal measures of this solution, and of the fluid from the former experiment, the muriate of tin was added; in the fluid a turbidness was produced, and a small grey precipitate slowly subsided; in the solution a copious black precipitate was formed, which fell to the bottom in considerable quantity. An experiment of a similar kind was made with pure potash, by adding it in equal quantities to the solution of the oxymuriate of mercury, and to the fluid that was separated from a mixture of oxymuriate and serum. Although there was some variety as to the effects produced on different specimens of serum by the oxymuriate of mercury, yet generally it appeared, that if to a quantity of serum half its weight of a saturated solution of the oxymuriate of mercury was added, and the mixture boiled, the albumen was all separated, the fluid was left transparent, and was affected neither by the oxymuriate nor by the serum, shewing that they had mutually saturated each other. The same circumstance, however, seemed to take place here, which had formerly been observed with respect to the compound of tan and jelly, that although there is one particular proportion in which the substances seem most disposed to unite, yet according to the quantities of each that are added together, a considerable variation is produced in the nature of the pro-

duct. In a comparative experiment, which was made for the purpose of ascertaining this point, it was found, that when the same quantity of the oxymuriate of mercury was added to two portions of diluted serum, one containing only half as much albumen as the other, the weights of the precipitates were as 9 to 15. When dried by a moderate heat, the precipitate which contained the greater proportion of the oxymuriate was harder, and of a blacker colour than the other.*

The following conclusions may be deduced from the experiments that are detailed in this paper. 1. The serosity of the blood contains no jelly. 2. It contains a minute quantity of albumen. 3. It contains about 2 per cent. of solid contents; the chief part of which is an animal matter different both from jelly and albumen. 4. It contains a little muriate of soda, and probably also a minute quantity of uncombined alkali. 5. The animal matter peculiar to serosity is not affected either by the oxymuriate of mercury or by tan, and it is not, like albumen, rendered insoluble by heat. 6. The specific gravity of serum is generally not more than 1.023. 7. Its solid contents are generally about 12 per cent. 8. The quantity of uncombined alkali in one ounce of serum is saturated by one grain of sulphuric acid. 9. The alkali is in the caustic state. 10. Serum contains about $\frac{1}{100}$ of its weight of the muriate of soda. 11. It is probable the coagulation of albumen by heat does not depend upon any chemical change in the relation of the alkali to the albumen. 12. It is probable that alcohol coagulates albumen principally by the sudden abstraction of water from it. 13. Sulphuric acid acts partly on the same principle, but partly also from a chemical union between the acid and the albumen. 14. The oxymuriate of mercury acts by forming a chemical compound with the albumen which is insoluble in water. 15. The compound of the oxymuriate of mercury and albumen is not uniform in the proportion of its constituents.

* The effect of the oxymuriate of mercury in coagulating serum appears to have been first discovered by Boyle. In the "Natural History of the Blood" he relates the following experiment: "To try also what a salt compounded "with a metal would do upon our serum, we put to it a little strong solution "of sublimate, with which it presently afforded a white and curdy substance."

Cases of Hydrophobia, treated, one of them successfully, by Mr. F. Tymon, Assistant Surgeon, H. M. 22d Light Dragoons; *with Observations by* Dr. A. Berry of the Madras Establishment, *Proceedings of the Medical Board, and Resolutions of the Honorable Governor in Council, in reference thereto.**

[From the Edinburgh Medical and Surgical Journal, for January 1813.]

To the Editor of the Madras Gazette.

Sir,

Considering it to be the duty of every medical man to make as publicly known as possible, every fact conducive to the welfare of suffering humanity, I give you two cases of hydrophobia, from the Medical Journal of H. M. 22d Dragoons at Arcot, for last month, as a novel and interesting article of communication for your next paper—one case unsuccessful, to show the nature of the disease, and the other successfully treated; a well-marked case, and perhaps the first on record where a patient, under such symptoms, has been saved; for in no disease have all endeavours at cure hitherto so uniformly failed as in this, when hydrophobic symptoms, induced by the bite of a rabid animal, have once been fully formed.

The alarm and dread that hydrophobia at all times causes,—the great distress that has been so frequently depicted from its effects,—and the liability to it, which all are exposed to from the bite of any rabid animal,—will, I think, attach considerable interest to the treatment adopted in the successful case, as it holds out a rational prospect of cure in this, one of the most melancholy forms of disease.

I shall reserve what I have further to observe, for the conclusion of this paper, and give you the cases as they appear in the Journal of Mr. F. Tymon, the assistant-surgeon of the regiment.—And first,

* For these valuable papers we are indebted to Mr. James Kellie, Assistant-Surgeon at Bangalore, and to Dr. Shoolbred, Surgeon to the Presidency at Calcutta.

The Unsuccessful Case.

JOHN IRWIN, private dragoon, admitted on the 6th October. In the morning when I first saw him, he was convulsed all over his body, the muscles of his neck unusually agitated, pulse at times quick, and afterwards ceasing altogether for a short lapse. Ordered him into the hospital. On being brought there, found no alteration in his symptoms. Directed an antispasmodic draught, which I offered in person. This he first viewed in silence, but, when pressed to take it, and discovering it to be a liquid, his convulsions increased with redoubled violence; sweats broke out profusely, attended with difficult respiration. He said the light caused him great uneasiness, consequently the light was excluded. He was observed to froth at the mouth, and his insuperable aversion to any thing in the form of a fluid, awoke in my mind the belief that all these direful symptoms must be connected with, or in fact be the result of canine madness. Unhappily, on inquiry, this supposition was not groundless, for the patient acknowledged his being bit on the 15th of July last by a dog in the barracks. His raving rather increased, but his wife (*an European*) corroborated the fact. I did my utmost to induce him to swallow the draught alluded to, but without success. He was sensible to reasoning at times, and abused dogs, lamenting his situation; but nothing liquid would prove acceptable. Whenever liquids were offered, he took them into his hands, attempted putting the fluids to his mouth, and immediately dashed them on the ground, and then his spasms commenced. He allowed me to bleed him. I took about 15 oz. of blood, and bound up his arm. This produced no alteration in his aversion to fluids. Ordered an injection of 300 drops of laudanum, and to rub in a drachm [of mercurial ointment?] twice every hour. He expired five hours after being admitted.

On opening the body the appearances were remarkable. The stomach was inflamed, several blood-vessels were extravasated, and the stomach loaded with bile. The intestines appeared to have undergone no change; the liver was slightly altered from its natural colour; the gall-bladder enlarged considerably and full of bile, very hot to the touch. The lungs were not changed in any manner, nor could I discover any thing preternatural in

the thorax. His eyes were swelled, and the blood-vessels on the tunica conjunctiva enlarged in their diameters beyond conception. On opening the head, nothing appeared which could induce a belief that any part of the brain or its vessels had suffered. The tongue was swelled, and so were the fauces, and inflamed.

The Successful Case.

Benjamin Mason, a farrier, aged 34, was seized with violent spasms on the 7th October. When I saw him, I found him violently agitated and screaming loudly; eight of the strongest men of his regiment were required to keep him on his cot; he clenched his fists at times, and made efforts to seize every thing he saw. In the midst of the paroxysm he said that carriages, horses, animals of every description were floating before him in the air. He was covered all over with sweat, his eyes at times staring, and at other times melancholy; gnashed his teeth in a manner not to be described; his neck was swelled; pulse very fast; light odious; pain in his head and temples increasing. He called for drink; but the instant he heard them pouring water into a tumbler his wildness increased. He then beckoned for it. When it came nigh him he shook his hand and trembled, I may say shivered. I made inquiries if he had been bitten by a dog at any period: his comrades acknowledged he was. One hour after I saw him, his ravings and efforts to disengage himself from his keepers became so tiresome, as to render it necessary to tie him to his cot; accordingly he was secured by several coils of bed-tape. I discovered he was bitten on his left thumb; therefore no obscurity now remained as to the nature of his complaint. I began by bleeding him until *scarcely a pulsation was to be felt in either arm.* During the operation, he made several efforts to bite me. As his arms and body were completely secured, and the quantity of blood taken away naturally reduced his efforts, I now offered a draught, which consisted of 100 drops of laudanum in mint-water. He endeavoured to reject it; but I separated his jaws by means of a small piece of wood, introduced between them, and poured the draught into his mouth, which he swallowed, by keeping his head in a recumbent posture. Notwithstanding some efforts were made in de-

glutition to reject it, his condition was so much debilitated from loss of blood as to enable me to effect it.

In the mean time I ordered injections of 300 drops of laudanum every second hour, and a drachm of mercurial ointment to be rubbed in every third hour.

P. M. 4 o'clock.—Is now in a slumber. At half-past 5 he awoke, with slight efforts to separate himself from his bindings. Pain in his head excruciating. Shaved his head, and blistered it all over. Mercurial frictions to be continued. Still has an aversion to fluids. Used the same means as before. Draught and glysters to be repeated.

P. M. 9 o'clock.—Slept for two hours, and appears to be refreshed; complains of a lassitude and sickness at stomach; speaks rationally. Offered him conjee water, which he kept in his mouth for a short time, swallowed a little, and discharged the remainder. Pulse rising. Repeat the frictions. To take a pill of four grains of calomel and two grains of James's powder, three times during the night. To repeat the injection twice during the night.

8th.—Pain in his head subsided; extremely debilitated, but rational; calls for drink, which, with some hesitation, he puts to his mouth and swallows, with a slight noise in his throat; pulse low. Mercurial frictions as before described to be continued. A pill of calomel four grains, and of opium and James's powder two grains, every second hour. Opiate injections to be repeated.

P. M.—Pain in his forehead become excruciating; was tranquil otherwise during the day; pulse 79. A blister to be applied to his forehead. To repeat the pills three times in the night, and to rub in a drachm of mercurial ointment every second hour.

9th.—Very easy; relieved from pain and uneasiness in his head; had only one evacuation for the last 24 hours. Castor oil, one ounce, to be taken immediately. Friction to be continued.

P. M.—Gums getting tender; feels no horror at the sight or approach of liquids; pulse rather hurried. To rub in a drachm of the ointment thrice during the night; pills to be continued. Bathed his feet in warm water.

10th.—Fugitive dislike to fluids; when pressed, swallows conjee water, and took one glass of wine; pulse rising and regular; gums tender. Continue friction; repeat pills.

P. M.—Bathed his feet as b-fore.

11th.—No mercurials in any shape; complains of weakness. His countenance is fallen, but appearances of doing well are manifest; spits a great deal. Continue pills and frictions.

P. M.—No alteration. Repeat pill twice during the night.

12th.—Very easy; gums salivated.

13th.—Very easy. 14th, do. 15th, do. 16th, do. 17th, do. 18th, do. 19th, do. 20th,—Discharged him from the hospital in a perfect state of convalescence, and he has since resumed his duties. (Nov. 1.)

(Signed) F. Tymon,
Assistant Surgeon, 22d Dragoons.

To A. Berry, Esq. M. D.

OBSERVATIONS.

That this was a real cure of hydrophobia cannot be doubted. To satisfy me the more fully on this subject, a statement has been forwarded from Captain Broome, commanding the detachment, depicting the situation of farrier Mason as stated by Mr. Tymon. Captain Broome says that Mason, after the bleeding, became somewhat composed, and held out his hand, saying, "I was bit here, sir;" and Captain Broome states, "I plainly saw a *dark spot*, as if a wound, on the inside of his finger."

A certificate from Henry Jackson, serjeant, specifies, that he and Irwin were bit on the same day, in the beginning of August, and Mason a day or two after.

As to the medical treatment, it must be immediately remarked by the medical reader of these two cases, that the bleeding in John Irwin's case, carried only to the extent of 15 oz. did not arrest, in any degree, the rapid progress of the disease; and that the bleeding of Benjamin Mason, continued *until scarcely a pulsation in either arm was to be felt*, saved his life, by diminishing violent action, and admitting the effect of medicines, that in all former experience had uniformly failed.

It also appears from these two cases, and several unsuccessful ones I have seen, that the hydrophobia from the bite of a rabid animal is of short duration; all those that I have seen having died within 24 or 36 hours at farthest, from the appearance of

the disease; and Benjamin Mason was evidently nearly cured, the evening of the day he was attacked, for, at 9 o'clock at night of the 7th October, he could keep conjee water in his mouth, and swallowed a little.

It would also appear that this disease may sometimes put on so mild a form as not to be dangerous, as appears by two other cases from Mr. Tymon,—one of corporal Rice, who was bit severely in the hand by a dog, about the middle of May; and another of serjeant Jackson, who was bit on the same day that John Irwin was, about the beginning of August, instead of the 15th of July, as stated in Irwin's case.

Corporal Rice was admitted into the hospital on the 6th of October, in the evening, for symptoms indicating hydrophobia,—appearing agitated and dejected; complaining of excruciating pain of his head; refusing to drink water when offered to him, pushing it from him at the same time in a gentle manner, accompanied with a deep sigh. He walked about the room, and his ideas were somewhat deranged. Refused to drink water for the whole of the 6th, or even to suck limes, though thirsty. His head was blistered, and mercury used both internally and externally, by frictions with injections. The hydrophobic symptoms in this case ceased in the evening of the succeeding day.

Serjeant Jackson, bit by the same dog that bit Benjamin Mason, was admitted into hospital on the evening of the 7th October. He was one of the number that secured Mason to his cot; he then ridiculed the idea of any danger to himself. When admitted, he complained of tormenting pain in his head; impatience of light; started and was agitated by any sudden gust of wind blowing on him; had a great flow of saliva; was much distressed and agitated at even the sight of water poured out. Pulse regular; partial sweats; drowsy and melancholy; eyes almost fixed, and very much inflamed. By blisters to his head, and mercury internally, and by friction and purgative injections, in the evening of the succeeding day he called for food, and drank conjee water without difficulty.

These few detailed facts, tending to confirm the short period of the disease, I consider of value, as giving confidence to the practitioner, and hope to the patient, by showing, when the progress of the disease can be arrested, a cure may be effected.

The state of John Irwin's stomach, if solely caused by hydrophobia, would indicate the inflammatory nature of the disease, and its principal seat of action, from the fauces to the stomach; rendering it probable that all irritating medicines are improper, and likely to prove hurtful, until that inflammatory action is diminished. I mention this particularly, from verdigrise in considerable quantity, having been stated, in an American paper, to have cured this disease; but I have seen no cases to satisfy me of the utility of this medicine, or that it was ever given with effect in any severe case of hydrophobia.

I will make a few extracts from authors to show how remarkable the successful treatment of hydrophobia must be considered. The celebrated Dr. Fothergill publishes a case of hydrophobia from the bite of a cat, in 1774, which terminated fatally in about 48 hours; and, in his notes on the case, when speaking of a cure for the canine madness, he says, the reader "will find perhaps nothing more of certainty in this respect, than that *all the remedies* hitherto proposed, either as preventives or cures, are found, by experience, to be altogether ineffectual."

The patient was blooded, but only six ounces of blood at first are stated to have been abstracted. He was a second time bled, as Dr. Fothergill states, standing, according as his strength would bear,—and in the evening, the patient received his physicians with the utmost transport of joy; describing, in strong terms, the pleasure and benefit he received from the warm bath, and the hopes he now conceived of a speedy recovery. The bleeding would, in this case, appear to have been too long delayed, for he died exhausted in about seven or eight hours after, having been for about half an hour in the warm bath after it; from which, when immersed, he always found great relief.

Dr. Mosely, in his publication more than 20 years later, recommends the cutting out of the part bit as the only remedy. He says, "This method of treating the bites of mad animals, if on a part where it can be used, will, I am confident, prevent their fatal effects; applied *at any time previous* to the first symptoms that forerun a general affection which ends in hydrophobia, and admits of *no remedy*."

Mr. Darwin, in his Zoonomia, speaks of hydrophobia as a fatal disease, and considers it to resemble tetanus or locked-jaw, in its tendency to convulsion from a distant wound. This simi-

larity between the two diseases may suggest, under certain circumstances, to medical practitioners, the utility of bleeding carried to the length of diminishing spasmodic action in those dangerous, and too frequently fatal diseases, tetanus and locked-jaw, and if it is stopped when fainting occurs, no bad consequences follow, as is shown by Dr. Fothergill, and more particularly by Dr. Veitch on ophthalmia; nay, that it is less detrimental than repeated bleedings even to a less extent.

Dr. Cullen speaks only generally and doubtfully of any preventive or remedy for hydrophobia.

I have now, I believe, stated sufficient to show, that the successful treatment of a well-marked case of hydrophobia is an event of great import to the public and to the medical profession; and that further facts, properly detailed, either to confirm or to show the inefficacy of the practice here recommended, or to point out any other successful method, should be made known by medical practitioners, to rescue this disease from being an opprobrium to the healing art; and attention should be had, on any recurrence of such an accident, to a person who has been cured of a well-marked disease—to ascertain whether the poison of a rabid animal has obeyed the laws of the inoculated animal poisons, that infect the system, after a time, by absorption, produce a general affection and febrile disease, and thus render any subsequent inoculation or infection innoxious, which I think may be probable. If this can be ascertained, much will be gained in the knowledge of this disease; and I have, in consequence, requested to be made acquainted with whatever may befal Benjamin Mason, whose recovery has suggested this idea.—I am, sir, your obedient servant,

Fort St. George, Nov. 20, 1811. A. Berry.

Medical Board, 7th February, 1812.

1. The Medical Board have the honour to acknowledge the return of their proceedings, of the 29th November last, with the resolutions of the Honourable the Governor in Council thereon, dated the 7th ultimo, expressing the happiness which his Honour in Council will have, in giving all possible publicity to the authenticated case of recovery from hydrophobia, and directing the Board to transmit to him two copies of the extract from Mr. Tymon's Journal, for the information of the Govern-

ments of Bengal and Bombay, with such observations on the case as the Board may judge necessary.

2. The Medical Board have now the honour to transmit two official copies of the case of Benjamin Mason, a farrier in his Majesty's 22d Dragoons, extracted from the journal of Mr. Tymon, the assistant surgeon of the regiment, which came to the Board authenticated in the fullest manner, both by Mr. Tymon and also by a certificate from Captain Broome, commanding the detachment.

3. The violence of the disease, and the decidedly successful practice that was adopted, make this case of hydrophobia of considerable interest, holding out, as it does, a rational prospect of cure in one of the most melancholy forms of disease, and accordingly deserving of being most carefully and extensively published.

4. Another case, which terminated fatally, showed that the cure of Benjamin Mason was in a great measure, if not solely, to be attributed to bleeding having been carried to the extent described by Mr. Tymon, thereby arresting the progress of the disease, and gaining time for the administration of the proper medicines. It is to this circumstance that the Medical Board think attention should be chiefly directed, and that, under all similar circumstances, this powerful remedy should be principally depended upon, and early adopted, as the disease, when fully formed, is rapid in its progress, and may possibly be soon too far advanced for even bleeding *to fainting* being of utility; for it is only from a copious loss of blood that the hope of recovery can be entertained, and as medical practitioners can always judge of the extent to which that can be carried with safety, the Medical Board consider it only necessary to draw their attention to it, when sanctioned by so marked an instance of success, as that stated in the case of Benjamin Mason.

5. Another case of the successful treatment of hydrophobia has been brought to the notice of the Board, in an extract from the Philosophical Magazine for August 1805.* This is mention-

* See an account of a case of Hydrophobia, successfully treated by copious Bleeding and mercury. In two Letters from Dr. Robert Barton of Bent creek, Virginia, to Dr. Benjamin Rush, of Philadelphia. New-York Medical Repository for 1805, page 15. *Editors.*

ed as an additional illustration of the utility of bleeding, and further that, when it is not carried to sufficient extent at the beginning, a greater abstraction of blood becomes necessary than would otherwise have been required. This cure is stated to have been performed by a Dr. Burton, and communicated to Dr. Rush, both of Philadelphia, and must also be deemed authentic. For these satisfactory reasons, the Medical Board have been induced to notice it.

(Signed) T. GAHAGAN, *Physician-General and President Medical Board.*—A. WATSON, M. D. *2d Member Medical Board.* —ANDREW BERRY, *3d Member Medical Board.*

Resolutions of the Honqurable the Governor in Council dated 21st February, 1812.

Resolved, That 250 printed copies of these proceedings, and of the certified case of recovery from hydrophobia to which they relate, be prepared at the Government Press, under the superintendence of the Medical Board, for the purpose of general circulation, being first attested by the signature of their Secretary.

By order of the Honourable the Governor in Council,

G. STRACHEY, *Secretary to Government.*

Observations on the Case of Ann Moore, called the Fasting-Woman of Tutbury.

BY A. HENDERSON, M. D.
Physician to the Westminister General Dispensary.

[From the Edinburgh Medical and Surgical Journal, for January 1813.]

SOME account of Ann Moore, known by the appellation of the *Fasting-Woman* of Tutbury, having already appeared in your Journal, accompanied by certain speculations on her case, I am induced to transmit to you the particulars of a visit, which I had the curiosity to pay her, with my friend Mr. Lawrence, and another gentleman, when passing through Staffordshire, last summer; and to add a few remarks on her proceedings, with a view to undeceive the public in regard to her, and to expose the true character of her pretensions.

Previously to our visit, we had endeavoured to collect the opinions of the neighbourhood, concerning this case of alleged

extraordinary abstinence. Of the medical gentlemen to whom we addressed ourselves, the majority seemed sceptical on the subject; though it did not appear that any very decisive means had been used by them to prove the fact of imposture: but, among the common people, there was the most implicit belief in the truth of the story; and, whenever we ventured to express any doubts, we were invariably referred to the watching, to which Ann Moore had been subjected, as a full and satisfactory refutation of our incredulity.

On our arrival at Tutbury, we lost no time in proceeding to the dwelling of Ann Moore, whom we found sitting up in a bed so constructed as scarcely to admit of her using the recumbent posture. She did not seem in the least discomposed by our abrupt entrance; though, on reaching the house, some bustle was heard in the upper story, as if preparations had been making for our reception. From the appearance of her countenance, which was natural, and even healthy, and from that of her upper limbs, abdomen, and back, which we examined very carefully, she might be called rather thin; but many persons of her age, in perfect health, are much thinner. The abdomen was *not* contracted, nor did it present any peculiar appearance; nor was the pulsation of the aorta more distinctly perceptible that it is in the generality of persons. The lower extremities, however, seemed, to a certain extent, wasted and paralytic; the pulse was 94, firm and regular; both the hands and feet were moist; her mouth, as far as we were permitted to examine it, shewed no deficiency of saliva; and, on holding a mirror before her face, it was immediately covered with copious moisture. She spoke to us in a distinct and tolerably strong voice, and moved her arms and fingers with considerable force. There was an offensive urinous smell about the bed.

In answer to the questions we put to her, she told us that, on the 31st of October, she would be just 51 years old; that she had tasted no solid food for upwards of five years, and no drink for nearly four years, and had no desire for either; that she never even wetted her lips, except when she washed her face, which happened about once a week; that she had voided no urine since the week before Easter three years, and no fæces since that day (August 3) five years; that she had not slept or

lain down in bed for more than three years; that she sometimes dozed, with her head reclining on the pillow, but never so as to forget herself; that she had frequently blisters applied to the back of her neck, on account of a giddiness in her head, and that they rose and discharged plentifully; but that in general, she did not experience much uneasiness, nor feel pain, except on pressure of the left hypochondrium; that when she took snuff, which she did habitually, it produced a flow of mucus from the nostrils; that her hands were generally moist; and that she perspired freely over the whole surface of the body, when she had fits. The nature of these fits she did not explain. Her mouth, according to her own declaration, she was unable to open, because it occasioned severe pain behind the jaws; but the lower jaw acted freely enough within the sphere in which she chose to move it in our presence, to show that there was nothing defective in the articulations; the masseter and temporal muscles were soft, and could not, therefore, resist its descent: besides, it was evident, when she spoke, that she could separate her teeth to some extent, and that without giving any indications of uneasiness. Of all the fingers of the left hand, except the index, she said that she had lost the use; the middle finger, indeed, she admitted, could be moved by external force, not by volition. But while Mr. Lawrence was examining the spot, where she complained of pain on opening her mouth, she was observed to use the finger in question without any difficulty. On attempting to raise the two remaining fingers, which were in a bent posture, she made some resistance, and complained of my hurting her. The left hand, she affirmed, was hotter than the other.

Among the circumstances that tend to invalidate many of the above assertions, and, in particular, the statement respecting her prolonged abstinence, the following may be mentioned:

1. *The natural and healthy appearance of her face.*

2. *The strength of her pulse, muscles, and voice.*

3. *The moisture of her mouth, nostrils, eyes, and whole surface of the skin.*—If the functions of the stomach were entirely suspended, or even materially deranged, it is not likely that the saliva would continue to be regularly supplied, since the flow of it depends so much on the healthy state of that organ; and, without taking into account the occasional discharges from

blisters and other causes, it is obvious, that the exhalation from the lungs and surface of the body, which we ascertained, beyond the possibility of doubt, must occasion a correspondent drain from the internal parts. But these excretions have been found to amount, in a healthy person, to more than 65 ounces in the day. Allowing them to be reduced, by disease, to one half that quantity, it is evident that they would still be sufficient to consume the whole substance of Ann Moore in a very few weeks.

4. *The entireness of her intellectual faculties.*—Long continued fasting has always been reckoned among the predisposing causes of insanity. In a case recorded by Tulpius, delirium supervened on the 12th day. The same occurrence took place in that related by Dr. Currie, though a considerable portion of nourishment had been conveyed into the system by means of injections. And, in the "Remarkable Case" described by Dr. Willan, in the second volume of the Medical Communications, much confusion of mind was observable in the latter periods of the disorder.

5. *Her "notorious immoral character," in the former part of her life, and her own confession, "that she once,* THROUGH IMPOSITION, *passed for a religious person, merely for the sake of worldly gain."**—These are strong objections to the reception of her testimony, whatever degree of "calmness and serenity" may mark "her present state of mind;" however "clear and unimpeachable her doctrinal knowledge" may now prove, and however "pleasing it must be to every lover of religion to converse with her." If she once played the hypocrite "for the sake of worldly interest," the presumption is, that she would not scruple to act that, or any other part again, from the same motive.

6. *The obvious interest which she and her attendants have in supporting the deception.*—From the published accounts of her case it appears, that before she began to attract the attention of the public, she had been "labouring under the greatest distresses," and had not even sufficient clothes to cover her bed:† But, when we saw her, she seemed to be in very comfortable

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circumstances; and we were informed by a gentleman of the place, that she has turned the exhibition of her person to such account, as to be able, in the course of the present year, to place the sum of 400*l.* in the stocks.

7. *The imperfect manner in which she has been watched.*—As much stress has been laid on the proof afforded by the watching of her person during sixteen days, it may be worth while to inquire in what manner it was performed. The author of the "Account" tells us, that Ann Moore "having consented to be removed, Mr. Taylor (a surgeon of the neighbourhood) went round the town to procure a number of the most respectable inhabitants for the watch; and he made it his first principle, to expunge those who, in his *opinion*, were in the least degree liable to be imposed on, or of a disposition that might be suspected would connive at imposture. He admitted no persons but such as most vehemently objected to the verity of the fact." "Mr. H. Jackson," we are further assured, "having a *thorough knowledge* of the inhabitants, took upon himself the trouble of setting the watch; and he being of the most invincible incredulity, was well qualified for the purpose. When it was known that Nanny had been under watch for forty hours, and was challenging the investigation, *great numbers of people*, merely from curiosity, *came to offer their service*, so that there was not the least difficulty in procuring a sufficient number for the purpose. The principal care that remained to Mr. Jackson, was the matching of people of different qualifications together, in such a manner as to afford a greater security, and that the watch should be constantly and faithfully kept. In order to which, such as man and wife, brother and sister, &c. were never suffered to attend at the same time, nor any persons that were likely to be influenced in her favour. The watch was generally changed every four hours, and, for farther satisfaction, placards were stuck up in different parts of the town, announcing, 'This is to maintain, that Ann Moore has taken no nourishment since Tuesday afternoon, at three o'clock, and is truly and constantly watched. All persons are hereby challenged to disprove the fact, and may watch for themselves, during the further period of time that shall, by medical consultation, be determined to establish

the same.' "* The truth is, that almost every one, who "came to offer" his service, was permitted to undertake the task; and during the sixteen days that the watch continued, not fewer, as we were credibly informed, than from 80 to 90 different persons officiated. Among this number, is it not highly probable, that there may have been some of Ann Moore's private friends, who supplied her with food, and connived at her eating and drinking? We are not told what were the respective characters of the individuals employed; whether they were persons of known probity and veracity; no security is given for their vigilance; no information is afforded as to the mode in which they were superintended; but we are called upon to place unlimited confidence in Mr. Taylor's "opinion" of their liability to be imposed upon, in Mr. Jackson's "knowledge" of their characters, and his skill in "matching them together;" in other words, we are called upon to believe an improbable fact upon the most suspicious of all testimony, upon the *opinion* which A has of the dispositions of B, C, D, E, &c. and of the *knowledge* and *care* which X has displayed in *matching* B with D, C with E, and so on. Can any thing be more unsatisfactory? But granting, for a moment, that the proof was as perfect as it was possible for it to be, and that this trial of Ann Moore was conducted with the utmost strictness and regularity,—what would the inference amount to? Why, that she had fasted sixteen days and nights, a period of time during which it is certainly not impossible that she may have endured the privation; not that she has lived five whole years and odd months without any nutriment whatever.

That the human body can be brought to subsist, for a considerable time, on very small quantities of food, has been long known; and, if we consult the records of medicine, we shall find, that there are not wanting well authenticated instances of even more protracted abstinence than was exhibited on the occasion in question. Thus Doebel gives the history of a hypochondriac, who fasted during a period of 40 days, but died soon after his return to food. And Morgagni, on the authority of Fantonus, mentions the instance of a woman, who obstinately refused to take any sustenance, except twice, during 50 days, at the end

* Loc. cit. p. 21, 22.

circumstances; and we were informed by a gentleman of the place, that she has turned the exhibition of her person to such account, as to be able, in the course of the present year, to place the sum of 400*l.* in the stocks.

7. *The imperfect manner in which she has been watched.*—As much stress has been laid on the proof afforded by the watching of her person during sixteen days, it may be worth while to inquire in what manner it was performed. The author of the "Account" tells us, that Ann Moore "having consented to be removed, Mr. Taylor (a surgeon of the neighbourhood) went round the town to procure a number of the most respectable inhabitants for the watch; and he made it his first principle, to expunge those who, in his *opinion*, were in the least degree liable to be imposed on, or of a disposition that might be suspected would connive at imposture. He admitted no persons but such as most vehemently objected to the verity of the fact." "Mr. H. Jackson," we are further assured, "having a *thorough knowledge* of the inhabitants, took upon himself the trouble of setting the watch; and he being of the most invincible incredulity, was well qualified for the purpose. When it was known that Nanny had been under watch for forty hours, and was challenging the investigation, *great numbers of people*, merely from curiosity, *came to offer their service*, so that there was not the least difficulty in procuring a sufficient number for the purpose. The principal care that remained to Mr. Jackson, was the matching of people of different qualifications together, in such a manner as to afford a greater security, and that the watch should be constantly and faithfully kept. In order to which, such as man and wife, brother and sister, &c. were never suffered to attend at the same time, nor any persons that were likely to be influenced in her favour. The watch was generally changed every four hours, and, for farther satisfaction, placards were stuck up in different parts of the town, announcing, 'This is to maintain, that Ann Moore has taken no nourishment since Tuesday afternoon, at three o'clock, and is truly and constantly watched. All persons are hereby challenged to disprove the fact, and may watch for themselves, during the further period of time that shall, by medical consultation, be determined to establish

the same.' "* The truth is, that almost every one, who "came to offer" his service, was permitted to undertake the task; and during the sixteen days that the watch continued, not fewer, as we were credibly informed, than from 80 to 90 different persons officiated. Among this number, is it not highly probable, that there may have been some of Ann Moore's private friends, who supplied her with food, and connived at her eating and drinking? We are not told what were the respective characters of the individuals employed; whether they were persons of known probity and veracity; no security is given for their vigilance; no information is afforded as to the mode in which they were superintended; but we are called upon to place unlimited confidence in Mr. Taylor's "opinion" of their liability to be imposed upon, in Mr. Jackson's "knowledge" of their characters, and his skill in "matching them together;" in other words, we are called upon to believe an improbable fact upon the most suspicious of all testimony, upon the *opinion* which A has of the dispositions of B, C, D, E, &c. and of the *knowledge* and *care* which X has displayed in *matching* B with D, C with E, and so on. Can any thing be more unsatisfactory? But granting, for a moment, that the proof was as perfect as it was possible for it to be, and that this trial of Ann Moore was conducted with the utmost strictness and regularity,—what would the inference amount to? Why, that she had fasted sixteen days and nights, a period of time during which it is certainly not impossible that she may have endured the privation; not that she has lived five whole years and odd months without any nutriment whatever.

That the human body can be brought to subsist, for a considerable time, on very small quantities of food, has been long known; and, if we consult the records of medicine, we shall find, that there are not wanting well authenticated instances of even more protracted abstinence than was exhibited on the occasion in question. Thus Doebel gives the history of a hypochondriac, who fasted during a period of 40 days, but died soon after his return to food. And Morgagni, on the authority of Fantonus, mentions the instance of a woman, who obstinately refused to take any sustenance, except twice, during 50 days, at the end

* Loc. cit. p. 21, 22.

of which period she died. In the case which is detailed by Dr. Eccles, in the 5th volume of the Edinburgh Medical Essays, the patient continued, first 34 days, and afterwards 54 days, without either eating or drinking. It is true, that, during part of this time, nourishing injections were used; but, for the last 20 days of the second fast, even that mode of supply was cut off, and the abstinence was complete in every sense of the word. In Dr. Willan's case, the patient persevered in the disuse of solid food till the 61st day, taking only small quantities of water slightly flavoured with juice of oranges, to moisten his mouth. These two last cases also terminated fatally.

The madman, mentioned by Pouteau,* lived 47 days, without taking any thing but a pint and a half of water in the day, and stood constantly in the same position during 38 days of that time: the return to food was followed by a temporary cure of his insanity. That Ann Moore did not altogether refrain from drinking, during the watch of 16 days, is admitted even by Mr. Taylor. "In the course of the first three days of the investigation," says that gentleman, "she swallowed, in the whole, about ℥iss of water; but happening to step into the room while she was swallowing it, the extreme misery of deglutition, and the violent rising of wind resisting its passage to a degree that almost seemed to threaten suffocation, induced me to dissuade her from taking any more, while the experiment that was to vindicate her veracity continued."† The only fact, therefore, that can be learned from this imperfect trial, is, that Ann Moore was not seen taking any *solid* food during the space of 16 days and nights. Before that time, it is acknowledged, that "she had *abundant* opportunities" of eating; and since the watching, which has since so unaccountably allayed all suspicions with regard to her proceedings, she can be at no loss to procure sufficient aliment, from the quantity that is introduced into the house for her daughter, and the other female who lives with her.

8. *Her dread of a repetition of the watching.* On Mr. Thompson's proposing to her a second watching, she said, "that she had been upon her *trial* once, which she would not then have

* Memoires de l'Academie des Sciences, 1769.

† Med. & Phys. Journ. Vol. XX.

submitted to, but to oblige the *minister*, and for nobody in the world would she undergo a repetition of it. Her attendant," Mr. T. adds, "who is as well-educated a hypocrite as her mistress, was pleased to style it '*a trial for life.*' "*

9. *Her dread of all experiments whatever.* Thus, on one occasion, she refused to allow Dr. D. to hold a mirror before her face, in order to examine her respiration; exclaiming, "No more experiments for me! I have suffered enough already from experiments." At another time, she contrived to break a thermometer, which a gentleman had put into her hand, in order to ascertain the heat of her body. It is probably from a similar motive, that she now keeps her mouth shut; apprehending, either that her visitors might put her powers of deglutition to the test, or, that the mere inspection of her tongue might prove the recent introduction of food.

10. *Her concealment of the evacuation of urine.* At the time of the watching, it is admitted, that she passed urine to the amount of a pint in every two days: she has since found it convenient gradually to diminish the quantity, till at last she voids none at all. But there were several pretty strong presumptive proofs of the falsity of this assertion. One of us, in approaching her bed, happened to overturn an utensil, which was placed under it, obviously for her use, and which was partly filled with urine. There was also, as I have before remarked, an offensive urinous smell about the bed, to lessen the perceptibility of which is probably the reason of her insisting upon the window being kept always open.

These circumstances I mention the more particularly, as they led to the detection of a similar imposture, which was practised by a girl in Germany, about twelve years ago, and of which a minute relation has been furnished by Grüner.† Like Ann

* Med. and Phys. Journal, Vol. XXIV. p. 312.

† Erzahlung der Betrügerei eines Wundermadchens, 12mo. Berlin, 1800. That such impostures were by no means uncommon in former ages, will be abundantly evident from the following list of publications, which I extract from Sprengel and Haller.

Poggii Florent. de puella Germanica quæ biennium fere vixerat absque cibo potuque. 4to. Florent. 1551.

Ger. Bucoldiani brevis enarratio de puella, quæ sine cibo et potu per aliquot annos in pago Roed egit. 8vo. Paris, 1542.

Moore, this girl submitted to a watching of two or three weeks; and like her too, she passed the ordeal with her integrity unimpeached. If I remember right, she was even subjected to it a second time, without any discovery taking place. But, some time afterwards, a bystander observing that her linen was generally in a damp state, and had an urinous smell, (to conceal which, she used to have heated stones introduced into her bed, under pretence of cold at the pit of her stomach, and would never allow the window to be shut, affecting to faint the moment it was closed,) was led to a train of investigation, which ended in the complete exposure of the various artifices to which she had resorted for the concealment of her evacuations.

11. *Her saying*, "*that she believes a time may come when God will permit her to eat.*" She is thus prepared for any discovery that may take place, and can never be surprised at her meals or potations, without a ready excuse.

12. *The acknowledged fact, that she is now in the same, or nearly the same condition of body as when she commenced her alleged fast.* "It is apparent, (says your correspondent Mr. Granger,*) that abstinence *qua* abstinence has no effect upon her

Catherinæ Binder inedia. 8vo. Heidelb. 1584.

Pasc. Rollin histoire memorable d'une fille d'Anjou, laquelle a etée quatre ans sans user d'aucune nourriture, que d'un peu d'eau commun. 12mo. Paris, 1587.

Franc. Citesii Abstinens Confolentana. 8vo. Genev. 1602.

Pauli Lœtuli historia admiranda Apolloniæ Schreieræ, 4to. Bernæ, 1604.

J. Chifflet, asitia in puella Helvetica mirabilis. 8vo. Vesunt. 1610.

Philip Sechtleni, lapis lydius inediarum prodigiosarum, quas plurimi in multos dies, septimanas, menses, et annos protraxerunt. 12mo. Paderborn, 1614.

Magni Gabr. Block, Betänckiande, öfwr Ester jonodottes longwarige fastande i skone. 8vo. Stockholm, 1719.

Joh. Doebel vollstandiger Bericht von Ester Johannsen und ihrem langweiligen Zehnjahrigen fasten. Hall. 1724.

C. J. Lossau Beschriebung eines Casus ineditæ. 4to. Hamburg, 1729.

Charles Fontenelle sur une fille de Grenoble, qui ne boit ni ne mange depuis quatre ans. 4to. Poitiers, 1737.

One of the above mentioned writers, (Block) makes an observation, which is not unworthy of attention, viz. that all the examples of extraordinary fasting have been confined to the female sex. The remark still holds true with respect to the marvellous cases.

* Edinburgh Medical Journal, Vol. V. page 321.

system. The existence of the patient, after having fasted two years, with a countenance not far removed from the appearance of health, will not be looked upon as an effect of abstinence. For many months together, no wasting is observed." Nay, what is more extraordinary, if the descriptions which have been given of her person, by Mr. Granger and others, be correct, it will follow, that latterly she must have increased considerably in bulk; for we did not find the abdomen "so remarkably sunk in," as Mr. G. saw it; we did not succeed, like Mr. Taylor, in tracing, with the finger, the grand trunk of the aorta, "from the place most immediately under the ensiform process of the sternum, where the loose integument is drawn upon it, nearly to its bifurcation," in drawing it "from its situation over the spine," and "holding the skin across it," so as to show "both its shape and pulsation;"* nor did Ann Moore appear to us, as she did to J. L., "the most emaciated creature that ever existed."† Now it has been shown, that a considerable evaporation is constantly taking place from her lungs and skin; nothing, therefore, short of an actual miracle, can solve the problem of her increased size of body, under such circumstances.

13. *The variations and contradictions in her statements.* It would appear, from Mr. Taylor's narrative, that she continued the use of solid food in small quantities till the end of June 1807; but to us she positively averred, that she had taken nothing since the week before Easter of that year. When Mr. Thompson saw her, she acknowledged, that she passed a small quantity of urine once a week, and he understood this to be the case at the time when he wrote, (August 1809); but to us she declared, that she had voided none since the end of August 1808. In reply to a question by Mr. Corn,‡ she asserted, that she *never perspired;* but to us she admitted, that she perspired freely, when she had fits. To the gentleman whose thermometer she demolished, she complained of pain, and cried out upon the slightest touch of the abdomen; whilst she allowed us to use considerable pressure, without expressing the least unea-

* Medical and Physical Journal, Vol. XX.

† Loc. cit. page 25.

‡ Monthly Magazine, Oct. 1811.

siness. On the contrary, she repeatedly assured us, that we gave her no pain by the force which we employed.

14. *The inconsistency of her actions with her statements.* If the attempt to eat and drink really caused her such "misery of deglutition," as Mr. Taylor expresses it, why did she do either; especially as she had lost all desire of food so early as November, 1806. Her deceit respecting the contraction of the middle finger of her left hand, and inability to use it, has been already noticed. To Mr. Thompson she pretended to be in a state of such weakness, as made it great labour, and even pain for her to attempt to move; but upon his threatening her with a repetition of the watching, "she so completely forgot her situation," says Mr. T. "that she raised herself upright in bed, a position in which we had *previously* learned, she had not been for more than a year, griped her fists, threw her arms and head about with as much strength and ease, as the most healthy woman of an equal age could possibly do, and talked at the same time most loudly and incessantly, from the effect of violent passion." These inconsistencies are alone sufficient to throw discredit on every thing she says.

Other facts and arguments might be adduced; but I trust, that I have collected a sufficient body of evidence to prove, that there are no solid grounds for supposing, that the order of nature is subverted in the person of Ann Moore, but on the contrary, that there is every reason to believe, that her abstinence is feigned, and her sufferings, in a great measure, simulated. Such an inference Mr. Granger is pleased to denominate *an hypothesis;* but the hypothesis appears to me to be on the part of those who imagine, that a human being can exist, in a state of comparative health and strength, during a term of months and years, without any of the ordinary means of nutrition; and the only wonder remaining in my mind, is, that medical men should be found to lend their sanction to such extraordinary attestations as we have seen concerning the case in question.

Golden Square,
November 25th, 1812.

Observations on Tumors within the Pelvis, occasioning difficult Parturition.

BY H. PARK, ESQ. SURGEON AT LIVERPOOL.

[From the Medico-Chirurgical Transactions, Vol. II.]

As I have reason to believe that tumors within the female pelvis, occasioning difficult parturition, are not of very frequent occurrence, I hope it will not be altogether useless to young accoucheurs, if I communicate some account of the few that have fallen under my observation. I can at least say, that I should have been happy to have possessed, 30 or 40 years ago, the information they have afforded me; although, perhaps, by that assertion, I shall only prove myself culpable, for having been devoid of sufficient knowledge of the subject before these cases occurred.

The first case of this kind I saw, was somewhat more than 20 years ago, in a poor woman, under the care of Mr. Peacock, surgeon of this town, in conjunction with my friends and late colleagues, Dr. Lyon and Mr. Alanson. She had been in labour quite as long as we thought it safe to trust to the natural efforts, without the head being able to descend at all into the pelvis. Owing to a tumor, situated between the vagina and rectum, of a globular figure and firm texture, which left but very little space between this tumor and the pubis, we soon determined to open the head, and endeavour to deliver by the crotchet, which was effected without any very great difficulty. I, however, now think we were blameable for adopting that determination, without first attempting to diminish the bulk of the tumor. After delivery, we were somewhat surprised to find that the tumor had totally disappeared; and were divided in our ideas of the cause, viz. whether it had been some kind of hernia, which had receded as the child got below it; or whether it was a tumor of the encysted kind, that had been ruptured by the force of bringing down the head. I inclined to the latter opinion, and thought I could feel an orifice near the central part of it. I learned that the poor woman had more children afterwards, without any recurrence of the tumor.

The next case was that of Mrs. S——, whom I was engaged

to attend in her first confinement. On my first examination, I found the pelvis nearly filled by a tumor similar to the last mentioned, of a very firm texture, situated between the vagina and rectum. It was with some little difficulty I could pass the finger between the tumor and the pubis, so as to reach the os internum, till it became a good deal dilated. I almost despaired of this delivery being accomplished by the mere efforts of nature. In this, however, I was agreeably deceived; Mrs. S—— was delivered naturally of a living child, though not without a very severe struggle of a great many hours duration. After this she had four miscarriages and premature births in succession, each time of twins, from the the fourth to the end of the seventh month. The seven months' children were the last of the four; and these were likewise born without any forcible measures.

During these pregnancies the tumor, by its pressure on the urethra, frequently occasioned retention of urine, so as to require the use of the catheter; although I could not, by the touch, discover much change in its bulk. In one of these attacks, I was a good deal foiled in my attempt to introduce the catheter; when, on forcibly pressing back the tumor with two fingers, the urine flowed without the assistance of the instrument. I therefore instructed her husband to do this; and she had no farther occasion for my attention on that account.

In her next pregnancy she went on to her full term, of a single child, and it was in this labour we were called upon to take some decisive measures respecting the tumor; for, after the os internum was fully dilated, and the membranes ruptured, she passed the whole night in most severe labour, without the smallest advantage; the head constantly pressing on the upper part of the tumor, but without being able to descend into the pelvis in the smallest degree. In this, as well as in the last labour, I had the assistance of Dr. Lyon; and, after some deliberation, we agreed to make an incision, in a very cautious manner, into the tumor, which, from Dr. Lyon's apprehension of hernia, was preferred to a puncture with a trocar. The instrument I employed was the lancette cachée, used in pharyngotomy; with which, conducted on my finger to a part which I thought felt thinner than the rest, I made three or four slight scratches, till I thought the parietes felt thin; and then, by pres-

sing my finger strongly on the part, I forced it into a large cavity, which felt as if it was filled with a very gelatinous fluid. In this, however, I was deceived, for it proved a bloody serous fluid, with a number of flakes of membranous substances, resembling the strippings of tripe; some of these were as large as a quarter of a sheet of common paper. The tumor was completely evacuated by the next pain; and in two or three more the child was expelled. Mrs. S—— recovered but very slowly from this delivery. A very considerable discharge ensued from the incision, which engaged so much of her attention as considerably to deprive her of sleep; and was so offensive as to be perceived immediately on opening the outer door of the house, accompanied with a good deal of pain in the loins, debility, and symptomatic fever.

These continued, with little abatement, nearly three weeks; and, with gradual decrease, seven or eight weeks more, before they entirely ceased, and her health became restored. It appeared afterwards, that the healing of this tumor, and consolidation of its cavity, must have occasioned a considerable degree of stricture; for in her next labour, after the os internum was fully dilated, and the membranes ruptured, strong labour pains, of seven or eight hours duration, were required to force the head through the pelvis. And in the labour again succeeding to that, which proved an arm presentation, about the end of the eighth month, I found a considerable resistance to the passage of my hand, in search of the feet, made by a stricture, which evidently was not the os internum.

The next case was a poor woman in Shirkdale, about two miles from Liverpool, whom I was desired to see, in conjunction with Dr. Lyon, and who had been two days in labour, attended by two of the younger surgeons of this town. We found the difficulty to arise from a considerable tumor, situated like those already described, filling up a considerable part of the pelvis, but of a less firm texture, and not so globular, being of a more irregular oblong figure. The woman's strength was not very much exhausted, and the head pressed more into the pelvis than in either of the former cases. We therefore gave it as our opinion, that they might safely give nature a longer trial; and that the woman might easily be delivered by the crotchet,

if it should become necessary, not deeming this a case in which it would be eligible to hazard an incision. We learned however, that she was delivered by the mere efforts of nature on the following day; but were afterwards much concerned to hear, that she died of vomiting and constipation about three days afterwards, which information we did not obtain till some days after her interment, otherwise we should have been very desirous to have inspected the body. We conceived it not improbable that this might have been a case of intestinal hernia.

My fourth case was one in which I was consulted by a surgeon, who had been attending the poor woman nearly three weeks, for what he had conceived to be a retroverted uterus, and had made some ineffectual efforts to reduce it. The mistake was easy to be made, there was so much similarity in the symptoms, viz. considerable pains in the hypogastric region; much forcing down, with difficulty in voiding urine and fæces; a large round tumor seated between the vagina and rectum, and the os tincæ situated close to the os pubis, and so high as to render it rather difficult to reach it. The poor woman had missed her menstrual periods about three months. The surgeon had repeatedly introduced the catheter without finding any quantity of water, and without giving any relief. Before he spoke to me, he had consulted Mr. M'Culloch, a more experienced accoucheur, and of more accurate discernment, who had told him, he thought he was mistaken in his idea of a retroversion of the uterus. On examining, I was clearly of Mr. M'Culloch's opinion; the os tincæ, though close to the upper edge of the symphysis pubis, was in its natural direction, as much as the pressure of the tumor would admit, pointing downwards, not forwards; and the length of the cervix proved that the uterus was not impregnated. The finger could not be passed up at all behind the tumor. A few days before I saw her, she had had rather a copious discharge of blood per vaginam, but without any relief. The poor woman's health and strength were declining very fast from her sufferings; and it was evident she could have no relief, unless this tumor could be either dislodged or diminished. I attempted the former, by introducing all my four fingers and palm of the hand, but without the thumb, and attempted to raise it. The resistance was rather considerable,

and the woman complained a good deal; but I thought the tumor yielded, and I increased the force notwithstanding her complaints, by which I raised it completely above the brim of the pelvis. She said she thought something burst within her, but I was much inclined to believe it was merely breaking some adhesions the tumor had formed. She was much relieved; and very soon after this reduction, her evacuations by urine and stool became easy and natural. Five days afterwards she was attacked with vomiting and diarrhœa, after which her health daily improved; and the event proved that she had not been pregnant. What would become of this tumor, in case she should prove pregnant, may be a matter of considerable uncertainty.

My fifth case was one to which I was called by Mr. Chyers, a very judicious and experienced accoucheur of Prescot: the patient resided in West Derby, about half way between Liverpool and Prescot. The woman had been a considerable time in labour, till very much exhausted, yet making very little progress indeed. A tumor, very similar to those of my first and second cases, but not quite of so firm a texture as that of Mrs. S——, filled the pelvis so much as to keep the head up almost out of the reach of the finger, and to have rendered it extremely difficult to have delivered by the crotchet, provided no other means could have been devised. It was therefore immediately determined to make an incision in the same manner as with Mrs. S——, which was done, but with a different result. No cavity was discovered; nothing discharged but blood; nevertheless great advantage was gained, for the head immediately dropped nearly two inches, so as to render it easy to deliver by the crotchet, if necessary. Mr. Chyers was therefore left to his own discretion. He waited several hours; when finding that the natural efforts gained him no farther advantage, that the draining was considerable, and his patient in a sinking state, he perforated the head, and delivered in about three hours. The woman recovered without much difficulty; and Mr. Chyers informs me that she has had another child, of which her delivery was so expeditious, that they had not time to send for him.

My sixth and last case is that of Mrs. C——, a lady between 30 and 40 years of age, whom I am now attending in

her first confinement. On my first examination, on the morning of Wednesday the 22d May, I found a tumor very similar to that in the last mentioned case, except that I felt more confidence of its containing a fluid. It filled the pelvis so completely, that I did not, at that examination, reach the os internum at all. In the evening, after slight pains had continued all day, I reached it, with some little difficulty, above the symphysis pubis, and found it dilated just enough to admit one finger, and could feel the head presenting. That night passed over with little alteration, and the whole of the next day without much more. Very strong pains then came on, and continued the whole of Thursday night, which dilated the os internum to the diameter of about three inches, which seemed to be all the natural efforts could do; the membranes were ruptured, but the head could not descend, nor produce any farther dilatation, but rested on the top of the tumor and the upper edge of the pubis, in which latter part it occasioned a most acute sense of pain. I now advised Mr. C. to take another opinion, before I proceeded to any farther measures; on which my friend and late colleague, Mr. Alanson, was consulted, and agreed with me in thinking the tumor contained a fluid, and in the propriety of opening it, if the natural efforts did not soon produce a better effect. Soon after this, the pains changed very much for the worse, becoming distressingly acute, but wholly irregular and spasmodic, without any thing like regular effort. Large doses of opium were given through the day; and in the evening the regular forcing pains returned, when I determined to make an opening into the tumor, at first only by puncture, but more, if found necessary. This, however, proved sufficient; the contained fluid, which appeared to be merely a bloody serum, drained off so as to render the tumor quite flaccid, and to diminish its bulk at least two-thirds, and as the head descended into the pelvis, it became totally evacuated. Immediately after the puncture was made, the head began to dip into the pelvis, and to dilate the os internum more fully; but the child proving a large one, it required eight hours more of strong labour to complete the delivery, although the tumor could not oppose any farther resistance. The long pressure on the head destroyed the child. It is now the ninth day from delivery, and Mrs. C—— has ex-

perienced no farther consequences from her hard labour, than some pain and difficulty in passing her water, owing to the long pressure of the head on the pubis, and this has now nearly subsided. She has not any such discharges as followed in the case of Mrs. S——, but merely such as are common to all women at this period.

An account of the salutary effects, and beneficial influence of Marsh Miasmata in Pulmonary Diseases, with two remarkable cures at Ostend, of Hæmoptysis, and of Consumption; in a letter communicated by the late Rev. Dr. ABEEL, *to Professor* WILLIAM HAMERSLEY, *of this city, and by the same, to the Editors.*

[From the New-York Medical Repository, No. LX. for February, March and April, 1812.]

SIR,

My absence has prevented me from sending such remarks as I can do from experience in my own case, with respect to the curative effects of the marshy atmosphere of Ostend in Flanders, in affections of the lungs and spitting or vomiting blood. It would give me very great pleasure to offer any hint, which might stand a chance to be useful to Mr.——, or to any person connected with Col.——; but I must leave to the faculty to determine the nature of the case, and confine myself merely to my own case, and the situation of those consumptive persons, who were afterwards completely cured by taking my advice, and removing to Ostend.

I caught a violent cold and neglected it; a spitting of blood, and by degrees ordinary consumptive symptoms occurred. Dr. William Saunders was my physician. I followed his orders exactly: I then lived in London. I was removed to the country, and for six months, I lived on milk and vegetables. I tasted neither fish nor flesh of any kind; nor wine, spirits, or beer. I took constant exercise in an open carriage, or on horse-back; still the consumptive symptoms, attended with cough, hectic fever, spitting and vomiting of blood, rather seemed to increase than diminish. I was daily weaker and more emaciated. Bleeding or vomiting of blood, used to relieve me from the interior

wheezing in my chest, and from the dimness of vision; but both together or separately always would return.

Dr. Saunders advised me to travel about the country, by way of amusement and change of scene. With two friends, saddle-horses, and a phaeton, we viewed all the south-west of England, very quietly and at our ease; having travelled about 1000 miles in six weeks. While at Plymouth, in the month of June, Dr. Mudge insisted on my wearing flannel next my skin, all over my body; this seemed to diminish the necessity of bleeding in the arm, to once in three days, in place of three times a week. He agreed with Dr. Saunders in every point, and both advised me to lose blood, (6 or 8 ounces) every time I perceived the dimness of sight, to prevent the vomiting. Before that, I was sometimes forced to be bled four times a week. My cough was sometimes better; the spitting of matter and salt tasted globules was sometimes less; but the main disorder was in fact unabated. When I returned to my lodgings in the country, near London, Dr. Saunders advised me to try the marshy foggy air of Ostend, for which he took the hint from a very old book, published by a Dr. Ker, who asserts that Ostend (in his time) never failed to cure consumptions.—I set out three days after my return from my jaunt in Devonshire, Somersetshire, Cornwall, &c. &c. and in driving towards Dover, vomited blood often out of the doors of the carriage. I was three days at sea in bad weather: I could hardly walk when I landed; I lived there on vegetables and milk, having acquired rather a dislike to any other food. From that time I felt no more dimness of sight, and was able to dispense with bleeding. I never applied more to physicians or surgeons. In eight or ten days I was so strong that I could hardly credit the rapid change myself. In this situation, Sir John Peter, the British consul, induced me to live with him, and leave off my milk and bad water, to make use of Moselle, or small Rhenish wine at my meals. Nothing seemed now to hurt me; my appetite returned, my cough disappeared, with every symptom of spitting of blood. Chance made me now acquainted with the worthy Dr. Resolt, an excellent physician, living at Ostend. He assured me I was cured, and said he had never heard of any native of Ostend, that had been consumptive. In three weeks after my arrival, I sailed

again for London, and brought over my whole family, and since that time to this, almost thirty years, I have had no sort of complaints of that nature; but I have followed with attention the advice Dr. Saunders, Dr. Mudge, and Dr. Resolt, gave me, *never to keep a cold forty-eight hours;* though few people take less care of themselves than I do; but I never sit in wet clothes, or with wet feet; and I prefer the floor to a damp bed, or damp sheets. I fear I have now gone into a tiresome detail, yet it may be satisfactory to Mr. —— to know the particulars; to which I shall add, that I lived at Ostend near seven years, during which time I had many opportunities of bringing persons there who were consumptive, and all were cured. Among the rest, one young lady I brought down from Brussels, with her mother, Lady Torrington. Georgiana Byng was then about seventeen; I had left her in good health some months before; when, arriving at Brussels on business, I went to dine next day with Lady Torrington, and perceiving Georgiana was not at table, asked her father where she was, he touched my elbow, for if her mother heard it, she would leave the table. He soon afterwards told me she was at the point of death, not able to walk across her room, given over by the faculty and expected to live only a few days, her complaint a galloping consumption. I put him in mind of my own case, which he knew, but it had escaped him; and I added, that since her physician and even her parents had no kind of hopes, I wished that they would give her to me; he consented, provided her mother was willing. My request was no sooner made to her after dinner than she expressed a strong desire to set out with me next morning, when I was to go at any rate, if I thought I could get her to my house alive; in this I succeeded with much difficulty, but the eighth day after my arrival, she took my arm and walked round the ramparts of the town without resting. The twenty-first day, she returned to her father's in perfect health. She afterwads married Lord John Russel, to whom she had several children before she died, and had she lived, she would now have been Dutchess of Bedford; she never forgot that she was my adopted daughter and always called me Father. I have said enough to prove the quality of the air of Ostend in consumptive cases; I wish I could say wherein this quality resides, but I will not

pretend to what I do not know, nor venture to ascribe it to a larger quantity of azote and hydrogen, than common air. My opinion is, that though the sea air may form a part of the Ostend atmosphere, with certain winds, the chief part of it is combined with marsh miasmata, which we know to be the chief cause and origin of intermitting fevers, and these are extremely troublesome at Ostend, but under the care of the good Dr. Resolt, that much preferable evil to consumptions is easily cured. I am confident there are many situations in America equal to that of Ostend, and much resembling it. I have never been in the vicinity of Norfolk in Virginia, but from accounts of others, I imagine positions may be found that way, or in some parts of the sea coasts of the Northern States, where the spring tides flow into marshes behind and renew at times the brackish stagnated water. Perhaps even the salt water may be the least part of necessary composition; a very marshy low situation may probably do equally as well. I cannot yet ascertain whether any consumptions exist on Fausse Riviere, or even at Point Coupé, but agues I am told are frequently there. At all events I do firmly believe that hot tea, an abuse of too warm liquids, bad lodgings where the night air is not excluded, damp beds &c. would create a consumption even at Ostend.

Yours truly,

W. H.

Case of Amputation at the Shoulder Joint.

Drawn up by John Henry Cutting, M. D. Communicated by Dr. Marcet, For. Sec.

[From the Medico-Chirurgical Transactions, Vol. II.]

Amputation at the shoulder joint has now been so frequently and successfully performed, as to render it unnecessary to mention the result; but it will be seen, by the following case, that this operation may be performed with little hazard, under circumstances of the most disadvantageous and appalling kind.

Catherine Coulson, aged 30 years, unmarried, was admitted into Guy's Hospital, under the care of Mr. Astley Cooper, November 29th, 1809, on account of a firm, equable and im-

moveable tumor, situated at the upper and external part of the left arm, so high up, that, on a superficial inspection, it seemed to be connected, not only with the humerus itself, but also with the clavicle and scapula, rendering it probable, that it had an attachment to the glenoid cavity of the latter bone. The arm, however, could be moved forwards and backwards; but, in consequence of the weight of the tumor, and the great attenuation, or perhaps even complete obliteration of part of the deltoid muscle, produced by its pressure, the voluntary motion upwards was lost. On minute examination, it was ascertained, that this enlargement arose from the superior part of the humerus; but as symptoms of inflammation of the shoulder joint were present, a doubt still remained, whether the morbid action, which caused its formation, had commenced in those portions of bone which entered into the composition of that part. That the humerus itself was diseased, seemed evident, from an obvious enlargement and irregularity, felt at its inner part; commencing high up in the axilla, and ending about four inches from that point. The circumference of tumor, at its most bulging part, (the admeasurement being taking parallel with the arm) was $25\frac{3}{8}$ inches; and a line carried round its most prominent part, so as to surround both it and the arm, measured $24\frac{1}{8}$ inches.

This swelling was in general covered merely by common integuments; it was extremely painful when handled, and the skin over it felt much hotter than natural: upon it, many large veins were ramified. Motion of the arm gave considerable pain, which was referred both to the tumor and shoulder joint; and the patient complained much of the weight she had to support. Her appetite was impaired, and she had some degree of fever.

After her admission, the account collected of the commencement and progress of this disease, was the following: About three years and a half previously, after having once struck the summit of the shoulder forcibly against a wall, afterwards fallen on it, and repeatedly received blows on the same part in mangling, she observed a firm tumor, about the size of a nutmeg, at the superior part of the arm. Subsequently to this, she was always affected with pain about the shoulder, when employing the limb freely. The enlargement gradually increased; and about two years and a half before, when it was equal in size to a common

tea-cup, she was admitted into Guy's Hospital by Mr. Cooper. She remained under his care six weeks; during which time repeated blisters were had recourse to, without benefit. In about six months, she again applied for admission, and was re-admitted under Mr. Cooper. The tumor had then attained the size of a pint bason; and the motion of the arm had become less free than on the former occasion, though not so considerably as to prevent the pretty general use of the limb. For this reason, and because her constitution had suffered little, she would by no means consent to the operation of amputation at the shoulder joint, the necessity of which was strongly urged; and, at the expiration of eleven months, she quitted the hospital. Within the year and half antecedent to her last admission, the augmentation of the tumor had been very rapid; but she did not notice the enlargement mentioned to have been observed in the humerus itself, till six or seven weeks previously. Although her nights had been long restless, her general health continued good till the 26th November, when she was attacked with severe pain in the tumor (which felt hot) and about the shoulder, with loss of appetite and languor.

From the period of admission to the 8th December, bloodletting from the veins over the tumor, was twice employed, which diminished the pain and tenderness. The blood was sizy.

As the patient's arm had now become useless, and her sufferings, both from the weight and the symptoms under which she laboured, were very great, she was prevailed on, without much difficulty, to undergo an operation, which was speedily concluded on, and performed on the 8th December. The state of the deltoid muscles, before mentioned, prevented the possibility of executing it in the manner usually directed; for no flap, except of common integuments, could have been preserved. It was concluded, therefore, that the most advisable plan would be, to aim at covering the wound with those portions of integument and muscles, which anteriorly and posteriorly connected the arm to the trunk of the body.

The first step of the operation, was to secure the axillary artery. An incision, therefore, was made in its direction, high up in the axilla, two ligatures put on it and secured, when a

division was made between them. The application of a ligature on the part of the artery most distant from the heart, was to prevent the possibility of any hemorrhage from such anastomosing vessels as might empty themselves into it. An incision was next commenced, immediately anterior to the acromion process of the scapula, brought forwards, and ended in the axilla, passing just below the end of the artery on which the ligature was applied; and another was carried from the same point posteriorly, and made to meet the former one. The next part of the operation consisted in the gradual division of the muscles surrounding the joint, and the application of ligatures to such vessels as it appeared at all probable might furnish free hemorrhage. These, being numerous and large, in consequence of the great size of the tumor, it became necessary to secure ten arteries. As a further precaution, also, against any bleeding which might have taken place, either from returning vessels, owing to the circulation kept up by undivided branches of arteries, or from regurgitation, the veins accompanying the axillary and posterior circumflex arteries were tied by two ligatures each, and divided at the intervening space. The capsular ligament being at length laid bare, an incision was made into it, and the cavity of the joint exposed, which was filled with coagulable lymph, of a reddish colour, and gelatinous consistence, mixed with some serum or synovia. The arm being removed, the glenoid cavity was accurately examined, and presented no mark of disease: the internal surface of the capsular ligament was more vascular than natural, but the articulating surfaces were not destroyed. The cartilage was pared from the glenoid cavity, in order to facilitate the process of granulation; and after all hemorrhage was stopped, the integuments were brought together, and secured in apposition, by three sutures and straps.

The patient underwent the operation pretty well, although she had twice fainted, and was extremely apprehensive previously. Immediately after, she was very restless, and complained much of violent pain of the wrist and elbow of the amputated arm. Her pulse was 108, and rather weak. Thirty drops of tincture of opium were directed; and in consequence of vomiting soon after these were taken, the same dose was repeated. In a short time she became tolerably composed, and lay quiet

during the greater part of the subsequent night; but had no sleep till about one o'clook on the following morning. Severe pain, and a sense of pricking, similar to that produced by thorns and thistles, were much complained of, as if affecting the amputated arm. She had much thirst through the night, and slight cough.

On the 9th her pulse was still 108, and she continued to be affected with occasional slight cough: the tongue was rather white, and the thirst remained; but the skin was cool and moist. She still complained much of the pricking sensation; but, in other respects, felt pretty well. During the night following she had some disturbed sleep.

Her pulse, on the 10th, had risen to 120, but she complained only of the deceptive sensation, and had yet slight cough: the skin was moist. As she had had no evacuation from the bowels since the operation, ʒj of sulphate of magnesia was directed to be given, with a diaphoretic mixture, composed of acetate of potash and mint water every third or fourth hour. In the course of the afternoon two stools were procured, and the pulse sunk to 108. She rested pretty well during the night.

On the 11th, the pulse was 100 in the morning, but during the day varied from that point to 120; it did not, however, attain the latter point till towards evening, and after she had been visited by some friends. Slight cough continued; the tongue was pretty clean, the thirst lessened, and the skin moist. She rested ill at night, on account of boisterous weather.

On the 12th, the pulse varied from 112 to 120. Slight cough still occurred at times. The skin was rather hot and dry; but she felt pretty easy, though numbness of the arm was sometimes much complained of. She slept a little during the day, and had two evacuations from the bowels. There was a slight discharge from beneath the straps. A dose of the diaphoretic mixture mentioned above, without any sulphate of magnesia, was ordered to be given every two or three hours.

On the morning of the 13th the pulse was 128; at noon 120; and in the evening 120, and strong: the cough recurred at times. The skin, however, was less hot, and the tongue pretty clean, nor was the thirst urgent. Towards evening, her face became

flushed; she seemed very irritable, and was extremely impatient to have her position changed. Through the day she had two stools. No particular pain was complained of about the wound, but the numbness and pricking sensation, as if extending down the arm she had lost, was very troublesome; and the patient was very often impressed with the idea of possessing the ability to move the thumb and fingers of it. The discharge from the wound was moderate. The mixture was continued.

The pulse varied on the 14th from 108 to 120. The cough was better; the tongue was pretty clean; she complained of little thirst, and the skin continued in general moist and cool. She had five stools through the day, the two last of which were liquid. The discharge from the wound was still moderate, but the straps were rather offensive.

She was ordered 15 drops of tincture of opium at bed time, and the straps were moistened with vinegar and tepid water.

On the 15th, the pulse in the morning was 120; in the evening 132, and strong. The cough continued better; the skin was pretty cool, and there was some tendency to sweating. She made no particular complaint, and eat a small quantity of boiled fish with good appetite. In the morning she had three stools; in consequence of which ten drops of tincture of opium were given her. She slept well at night.

The straps were removed. One of the sutures had ulcerated through the skin. Some points of the wound seemed to have united by adhesive inflammation, and granulations had shot from others. There was no pain or swelling, and the discharge was moderate. Two vesicles, probably occasioned by the recumbent posture, had arisen on the skin covering the left scapula, but without any considerable inflammation.

Straps were again applied, to retain the sides of the wound as near as possible together, and a fold of lint placed over them, in the direction of the wound.

The pulse, on the morning of the 16th, was 120; during the day, it got down to 108, and was full: the cough had not wholly ceased, and she still complained of numbness of the amputated arm, as far as the fingers: her appetite was good, and she wished for wine. Had three stools. The discharge from the wound continued moderate. At night she slept well.

She was allowed to have ½lb. porter daily, and the straps were wetted with vinegar and water, on account of the fœtor.

On the 17th, the pulse varied from 108 to 120. She complained of pain of the left scapula, and still of numbness, referred to the arm of the same side. In the morning she had some tormina, which were removed by 15 drops of tincture of opium. She took food and porter with good appetite, and slept well.

The wound was examined, and the granulations appeared healthy. The discharge was more copious than before, and some pus could be squeezed from the inferior part of the wound. Two ligatures came away, and the sutures were ulcerating through the skin. The cuticle was found to have been rubbed from the blistered part noticed on the 15th.

The wound was dressed as before, and to the surface which had been blistered, a cloth, wet with vinegar, was applied. The patient was directed to lie more on the right side than before; and in order that she might have fresh air, a window was ordered to be opened at 10 A. M. and shut at 4 P. M. daily.

On the 18th, the pulse in the morning was as low as 90; but in the course of the day as high as 120. Slight cough continued. She complained of nothing, save numbness of the arm. As she had three stools during the day, 10 drops of tincture of opium were taken. The discharge continued moderate. She slept well.

The pulse, on the 19th, was in general about 108, fuller and stronger. She had four evacuations, and took therefore 10 drops of tincture of opium.

The wound was dressed: three ligatures, and the remaining two sutures, were withdrawn. The discharge was moderate, and much diminished from the lower part of the wound. The process of granulation was observed to have advanced, and the rubbed part on the back was healing.

During the 20th, 21st, and 22d, the pulse varied from 96 to 104, and was of good strength. The cough ceased on the former day. She slept well; the appetite was good, and she complained only of the numbness. In consequence of too free evacuations from the bowels, opium was given, under the form of tincture, on the 20th and 21st.

On the 22d the wound was dressed, and had considerably diminished; the granulations looked florid, and the discharge was moderate: two ligatures were taken away.

On the 23d, 24th, and 25th, the pulse was about 96, and she continued pretty well. On the latter day, the wound was dressed, and two ligatures were removed.

From the 26th to the 28th inclusive, the pulse varied from 92 to 108; and she felt pretty well. On the 28th, the edges of the wound were considerably nearer each other than they had been; the granulations looked well, and the discharge was still moderate; but a small quantity could be squeezed from near the inferior part of the wound, as if from a sinus.

During the 29th and 30th, she continued pretty well, and her pulse was 92. The wound was dressed on the 30th, and looked well.

On the 4th January, in the morning, no change in general symptoms had taken place: the pulse was 96. The wound was less than before: at its inferior part there was a slight red efflorescence on the skin. The discharge was moderate, though rather dark coloured. On the afternoon of this day, she rose, by permission, for the first time since the operation; and had not been up ten minutes, when she was attacked with a sense of fluttering within the chest, and was obliged to return to bed. She had, shortly after, one small and fœtid alvine evacuation (although she had passed a copious one shortly before), and was seized speedily with vomiting of a bitter matter. She slept afterwards, however, pretty well, and sweated through the night.

On the 5th the pulse was 120; the face somewhat flushed, and the tongue rather foul and dry. She made, however, little complaint, except of pain; referred to the amputated arm, which seemed to be placed sometimes posteriorly and sometimes anteriorly.

One strap was removed, and another cut, so as to ascertain whether any pus was confined beneath them, to produce constitutional irritation; but only a small quantity exuded, and the discharge, on the whole, was moderate.

She was ordered to have sulphate of magnesia, with the diaphoretic mixture, as formerly, and 25 drops of tincture of opium in the evening; but as the former had not operated at night, the latter was not given. She had some sleep.

On the morning of the 6th she had three stools: the pulse was

120, rather full and strong. She had some return of cough; the skin was hot; the tongue dry, and somewhat foul, and there was thirst. She made no other complaint but of considerable pain, as if of the arm. The wound looked healthy; and the three ligatures which remained, were found to be very firm.

Ten drops of tincture of opium were directed to be given every six hours, and the diaphoretic mixture, with sulphate of magnesia, to be repeated. Four straps were applied on the wound, and a poultice over them.

Two doses of the opiate were given, which produced drowsiness, and she rested pretty well.

The pulse was 120 on the morning of the 7th, full and strong; the tongue rather white, but she had little thirst: her skin was moist. She had still some cough. Her countenance was languid, and she complained much of pain, and sense of weight, as if of the amputated arm. Appetite impaired.

Animal food was prohibited, and the opium omitted.

The mixture was repeated, and poultice continued.

During the afternoon of this day she had four stools. She complained, in the evening, of sense of heat at the anterior part of the wound; but, on examination, no preternatural appearance was observed. The granulating surface, however, was observed to project beyond, and overlap the straps at two points: these, therefore, were made to pass over, and in some degree compress such exuberant portions. Fifteen drops of tincture of opium were given at night, in consequence of a fifth evacuation from the bowels. She had no sleep till twelve or one o'clock, but slept well afterwards, and sweated.

On the 8th the pulse was 112, intermitting one beat in every 10 or 12. The skin was cool; the tongue rather dry, but no thirst was complained of; and she felt pretty well, although the pain referred to the amputated arm was sometimes troublesome. She was more cheerful, and had some return of appetite.

She was allowed animal food, and the poultice was ordered to be continued. On the following night she slept extremely well.

9th. The pulse was 96, regular and firm; she had slight cough; her countenance was cheerful, and she made no complaint, ex-

cept of pain as before: her appetite was good, and she had one stool. At night she slept well, and had sweating.

10th. Pulse at 92; the pain continued; the countenance was again languid; the wound looked well.

On the 11th the pulse was 104: she had rested well, and only complained of the usual pain; but the countenance was anxious. As she had had no evacuation by the bowels since the 9th, sulphate of magnesia was given, and one procured. The wound looked well; had diminished, and discharged very little.

An unsuccessful attempt was made, for the first time since the 6th, to withdraw the ligatures.

From the 12th to the 14th, the pulse was at 88, and no other change took place. On the latter day, the ligatures were found to be extremely firmly attached to the parts they surrounded. The poultice was then omitted; and, as she had had no stool since the 12th, the sulphate of magnesia was prescribed.

On the 15th and 16th the pulse was 84, and of good strength; occasional pain of the arm was all she complained of. The wound on the 16th had lessened, and discharged little. The ligatures were still found to be firm.

From the 17th to the 19th inclusive, the pulse was about 80 or 84, and she made little complaint. The upper part of the wound, on the 19th, was nearly covered by newly-formed skin. An efflorescence had appeared round the wound, supposed to have been produced by the straps. The action of the adhesive plaster, therefore, on the parts affected with it, was prevented, by placing lint beneath the straps on each side of the wound. On the 19th she was allowed to quit her bed, and remained up for two hours: she staggered much in walking, but her countenance was natural.

She sat up a good deal on the 21st, but could not stand near a fire without feeling faint. Her pulse was 80; and she made none but the usual complaint. She still felt as if she could move the fingers of the lost extremity, but any attempt to do so, produced a numbness, as if extending up the arm, with pain of the shoulder.

On the morning of 22d the pulse was 72, and she continued pretty well; but in the evening she had a severe attack of gas-

trodynia, which was relieved by a dose of tincture of opium and spirit of peppermint: her pulse was 80.

The wound was dressed, and the ligatures could not be withdrawn. As the efflorescence had not diminished, lint, wetted with a solution of acetate of lead, was applied to it.

Nothing particularly worthy of notice occurred from the above period to the 30th, when her pulse was 72, and firm; and she was in general well, though she could not sit within less than six or seven feet of a fire without feeling oppressed. She still complained of pain of the arm. The efflorescence had nearly disappeared.

As the ligatures could not be withdrawn, it was deemed proper to hasten the ulcerative process, necessary for their separation, by artificial means; to one of them, therefore, a small roll of strap was so attached, that it could be readily twisted.

On the 31st December and 1st January, she complained of very severe pain of the arm, particularly when the ligature was twisted. Her pulse was 90, and she slept ill.

The strap was cut from the ligature. The pain diminished, and the pulse got down to the natural standard.

On the 5th the ligature, supposed to be that which secured the axillary artery, came away easily.

One of the two remaining ligatures was withdrawn on the 10th; cicatrization had considerably advanced, and the granulating surface of the wound was about two inches long, and at its broadest part, i. e. around the ligature, one inch wide.

After this period the health of the patient continued to improve; and in a short time she thought herself as well, in general, as ever she had been. The menses, which had been present some days when the operation was performed, recurred six weeks after it, and continued afterwards regular. During the month of March, as the ligature seemed still firmly attached, and any attempt to withdraw it occasioned considerable pain and sense of fulness of the shoulder, and severe numbness, as if extending from the fingers of the amputated arm to the clavicle, an attempt was for some time made to dilate the orifice through which it passed with lint, so that, if possible, its attachment might be discovered and divided. Almost the only part remaining, at this time, to be covered with skin, surrounded this liga-

ture, and was about one inch in length and $\frac{7}{8}$ths in breadth. No disposition was shown in it to heal, until subsequently to the 28th of March, when the last ligature was withdrawn. Cicatrization now advanced; and in about three weeks, the formation of the new cuticle was completed. She still is impressed with the idea of having the arm, and that she can move the fingers; attempts, however, at such motion, are always attended with pain, and sense of pricking of the whole extremity; which, as before, when she is in the recumbent posture, feels to be placed over the breast; but when erect, it appears to be placed posteriorly.

Dissection of the Tumor.

The weight of the tumor, including that of the os humeri, was eleven pounds.

The periosteum, in a considerably thickened state, covered the surface of the swelling.

The principal part of the tumor was composed of cartilage, which adhered firmly to the external surface of the bone, and to the inner side of the periosteum.

The bone was much increased in its diameter. Where the tumor was attached to it, numerous processes of bone passed into the cartilaginous matter.

The cancellated structure of the bone was obliterated opposite the disease, and a red pulpy mass was found in the cancelli, at that part at which the otherwise healthy bone joined the diseased.

Cases of Tic Douloureux cured by Arsenic; Tumors of the Tongue cured by Mercury; recovery from an excessive Dose of Laudanum; and Observations on Herpes of the Prepuce. By Robert M'Kechnie, Surgeon, Paisley, and Member of the College of Physicians and Surgeons, Glasgow.

[From the Edinburgh Medical and Surgical Journal for July, 1811.]

The following papers are sent for insertion in the next number of the Journal, if they are deemed worthy of a place. The case of tic douloureux I have hitherto refrained from communicating, because it is well known that this disease often re-

turns, after an apparent cure has been effected, and in the present instance, I had frequently seen my patient relapse. But so long time has now passed, during which he has enjoyed as good health as any man of his years, that I hope I am warranted in viewing the cure as permanent. As I am not satisfied respecting the nature of the disease, I will not presume to make any observations upon the modus operandi of the treatment. I am convinced that in this case the affection was not connected with debility, "constituting the precise circumstances in which arsenical remedies have proved salutary," as Mr. Hill alleges; nor have I any reason to believe that it was a consequence of irregular action of the digestive organs, as Mr. Abernethy surmises. At the different accessions of the disease the bowels were frequently and freely purged with calomel and jalap, but I did not perceive any mitigation of symptoms from their use. The case of tumors in the tongue greatly resembles one published in the second volume of this Journal, which was cured by calomel and cicuta, continued for ten weeks, after the cicuta had failed by itself. Doubts, however, may arise in the minds of those who believe in the virtues of cicuta, whether the cure ought entirely to be ascribed to the mercury. No diminution of the tumors in Mrs. L.'s tongue took place till the ptyalism began. The success of the treatment of this case and that of tic douloureux by medicine, show the progress which is making in what may be called medical surgery; for, though we have a remedy at hand for tic douloureux, in cutting the affected nerve, and another in extirpation for tumors in the tongue, the irritability of which has been proved by the successful results of Dr. Inglis's cases to have been much over-rated, if a disease can be cured in the same time by medicine as by an operation, no comparison will be made between the two methods of treatment. The case of recovery from the rash use of laudanum, I am induced to publish, because I think it shows that we ought not to rest satisfied with fully evacuating the stomach after a vegetable poison has been swallowed. Though I saw the patient soon after the accident, and as expeditiously as possible emptied the stomach, the deleterious effects of the baneful drug still operated to such a degree, that, I verily believe, had the subsequent treatment not been adopted, she would have perished. A case of an excessive quantity of

laudanum being swallowed is inserted by Dr. Marcet in the first volume of the Medico-Chirurgical Transactions. It would seem, from the little impression which such an enormous dose made upon the stomach or constitution, after remaining above six hours in the body, that the young man had been accustomed to use opium, or that the liquid drank was not prepared of the usual strength. The quantity swallowed by A. J. was much less than that by Dr. Marcet's patient, yet the symptoms were equally alarming in a less space of time, and even after full vomiting had been excited. The observations upon herpes of the prepuce, were suggested by the brief, but accurate remarks, of the reporter of the Public Dispensary, near Carey street, in the last number of this Journal.

Paisley, 15th May, 1811.

Case of Tic Douloureux cured by Arsenic.

1st October 1807.—I was called to J. M. a merchant-tailor, aged 57, of a healthy constitution. He complained of a violent intermitting pain in the inferior jaw, beneath the right commissure of the mouth; a similar pain was also frequently felt in the right cheek, and under the right ear. He had been more or less subject for several years to these pains; which began beneath the ear, and afterwards became equally acute in the lower jaw, from which he had a carious tooth extracted, under a persuasion that it was the cause of his suffering. The attacks did not return periodically, nor did the seasons appear to influence their recurrence; for they were as frequent and severe in summer as in the winter. The first time I saw the patient in this ailment was on the 18th July 1804, when he laboured under an inveterate relapse. I applied vesicatories both to the jaw and to the neck beneath the ear, and kept the ulcers discharging with issue ointment.

By this treatment, and purging with calomel and jalap, the fits were moderated, but soon returned with increased violence. On the 8th August a course of pills, composed of cicuta and corrosive sublimate was prescribed; and, to hasten the effects of the mercury, camphorated mercurial ointment was ordered to be rubbed into the jaw. Salivation was speedily effected, and kept up about eight weeks, without producing any amelioration of the

patient's condition. The pains gradually decreased after the mercury was given over, and at last ceased altogether. Though slight twitches were often felt, after this no violent invasion took place till April 1806, when he again became exceedingly afflicted. The most intolerable pain which he endured in that attack was in the cheek, but the throes were now and then equally pungent in the other places. He said he was conscious that in his last illness he had obtained more relief from the blisters than from any other thing, and wished them to be repeated; this was done, but without interrupting the paroxysms. Leeches were next had recourse to, and the pains were mitigated, either by the loss of blood, or by the hot wet cloths which were applied to promote the bleeding. Finding so much relief from the first application of the leeches, he was induced frequently to repeat them in the same manner, when he was threatened with a paroxysm. At last, however, they lost their salutary influence, and he then tried the use of opium internally, and of sulphuric æther externally, to no purpose. The present attack began, without any known cause, about a week before I was consulted; when I arrived, my patient informed me his agony had been more insufferable than at any former period. The pains were most troublesome by day, seldom or never disturbing him by night. The excruciating paroxysms were excited by the slightest irritation; as by a breath of cold air blowing upon the face; by attempting to chew, or to speak abruptly, and sometimes even without provocation. At these times the pain suddenly darted into the lower jaw, and from that into the cheek, and beneath the ear. Each exacerbation consisted of a great number of short paroxysms, which lasted about half a minute; then remitted, returned immediately, again remitted, and so alternately, generally for the space of an hour. The exacerbations were not constant in degree or in duration. They sometimes caused violent contortions of the face, most ease being found by twisting the mouth to the left side, so as to stretch the muscles of the affected places, and by rubbing the skin towards his mouth with his fingers; relief was sometimes procured by pressing firmly over the inframaxillary foramen. When the anguish was greatest, the face flushed, and tears gushed from the eyes, but no change in the appearance of the parts affected could be discovered. To de-

scribe the kind of pain which the miserable sufferer endured is impossible; he himself said at one time it was as if something was piercing or screwing into the flesh; at another as if it was tearing or twisting from the bone. When the paroxysms ceased he enjoyed perfect immunity of pain, till the morbid action was again excited. The general health was not impaired; the pulse was of the usual standard; the appetite was good; the bowels were regular.

Though my patient had at this time the most excruciating pain in the lower jaw, yet, as he was positive the first sensations of this disease were felt in the distribution of the portio dura of the right auditory nerve, and as sometimes very acute pain was endured where the superior maxillary nerve issued from the infra-orbitary foramen, I considered it a hopeless experiment to cut the inferior maxillary nerve. As I was entirely ignorant of the nature of this affection, I looked upon every thing that could be done for it as empirical; and as, in the present case, many of the most active remedies had been employed by myself and others, in preceding attacks, without permanent advantage, I thought myself justified in making a trial of arsenic, which had been recommended for tic douloureux by high authority. I therefore prescribed the following mixture:

℞ Sol. min. arsen.
Aq. pur. āā ℥i.

Of this the patient was desired to take fifteen drops in a basin of gruel, three times a-day, and to add one drop every day till sensible signs of the operation of the medicine should be observed. For a few days there was no alleviation; but as the dose was increased, the paroxysms became less frequent and more tolerable. On the 15th the pains were completely gone, but to prevent a relapse, I thought proper to persist in using the mixture. On the 17th violent pain seized the stomach; the pulse was strong, and the thirst was intense. Blood was abstracted; castor-oil was prescribed, and copious draughts of demulcent drinks were recommended. The medicine was also intermitted; but in a short time the patient was so much recovered, that it was resumed in small doses. It was continued a fortnight longer, without return of the original complaint, or of suffering from the remedy.

14th May 1811.—The painful affection of the face has never returned since the arsenical solution was desisted from, and the general health has been in every respect good.

Case of Tumors in the Tongue cured by Mercury.

7th February 1811.—Mrs L. aged 47, was admitted a patient of the Dispensary, for several tumors in the tongue. She had born a numerous family, and still menstruated regularly, but her general health had often suffered from abortions and profuse floodings. She had been subject to no local complaint till five years ago, when, in the last months of pregnancy, she was troubled with an eruption upon the nose, which was removed by rubbing it with what a quack called black mercury. After she was delivered, she was afflicted with an extensive inflammation in the throat, which was cured by frequently applying some liquid to the parts, by means of a sponge. About two years and a half ago, without any known cause, the tongue became very painful, and swelled to such a magnitude, that she could neither speak distinctly, nor swallow food, unless it were liquid. On this account, she rubbed the throat from ear to ear with an irritating ointment, which produced an eruption of pimples beneath the jaw. The swelling dissolved in the course of six weeks, and she then discovered several small knots in the substance of the tongue, round the edge of its anterior portion. She applied to her former adviser, but deriving no benefit from him, she consulted another itinerant, who gave her pills, composed, as she understood, of mercury. She took one three times a-day for several weeks, without her mouth becoming affected; at first she thought the tumors diminished; afterwards they remained stationary, and she desisted from the use of the pills. Nothing else was done till she put herself under my care, when she gave me the above history, and assured me the tumors were regularly increasing in size. They occupied almost the whole anterior portion of the tongue, and on the left side a large one extended far beyond where this organ is bound down to the jaw. They were so deeply seated in its substance, and so firmly adhered to it, that it was impossible to say whether they were nearest the superior or the inferior surface. The patient informed me small ulcers sometimes formed in different parts of the tumors and

soon healed, but no cicatrices of such ulcers were observable. The tumors were irregular in their surface, having various depressions and elevations, and were as hard and unyielding as scirrhus. Though that on the left side was the largest, they were all equally painful, and troubled her much in manducation. She said, the pain which she felt was as if a spear were thrust from the tumors into the inferior jaw. The rest of the tongue was as soft and moist as usual, though the whole upper surface was covered with wide chaps; the sense of taste was natural.

My patient had suffered so much pain and inconvenience from these tumors, which she was convinced were rapidly enlarging, that she was alarmed about the consequences, and offered to submit to their extirpation. After reflecting, however, upon the history and present symptoms of the case, I could not reconcile myself to such a formidable operation as the removal of half of the tongue, which would have been requisite in order to eradicate the disease. She exhibited no signs of carcinomatous affection, or of suffering from the irritation of the tumors; her general health was better than it had been when she was younger; the sublingual and maxillary glands were not enlarged; and the spontaneous healing of the little ulcers, which occasionally formed on the surface of the tumors, indicated that they were not of a malignant character. From these reasons I thought some milder remedy than extirpation ought first to be tried, and with this view showed the case to my friend Mr. Kerr. He concurred in opinion with me, and the use of arsenic was talked of; but it was judged expedient to defer it till the full operation of mercury should be seen, especially as Mr. Kerr had formerly cured a case of the same kind in a child with this medicine, and as the patient was persuaded she had formerly been relieved by it. A blue pill was prescribed morning and evening, and afterwards three times a-day, but without effecting any reduction of the tumors. They moved the bowels, but neither salivated nor made the mouth sore. Mercurial friction into the thigh was therefore joined to the pills, to the extent of half a drachm of ointment twice a-day. In a short time the mouth became very sore; the mouth and face swelled enormously, and the ptyalism was profuse. The medicine was desisted from, and astringent gargles, with laxatives, destroyed the effects of the mercury. On

the 19th March, no tumor or hardness could be detected in any part of the tongue; the pains were also entirely gone. As the deep chaps with the elevated edges continued, a few pills were repeated in April, but made no impression upon them. May 14, 1811.—The tongue is soft and free from pain; the fissures on its upper surface remain unchanged.

As it has been hinted to me that the above tumors might have been of a syphilitic nature, I think it proper to add, that the patient is of a respectable moral character, as is also her husband. She had been long accustomed to smoke tobacco, but never had any affection of the mouth or throat till the time mentioned.

Case of Recovery from an excessive Dose of Laudanum.

I was hurriedly called at five o'clock P. M. of the 23d April last, to visit A. S. an unmarried woman, aged 28, who had, in a fit of passion, determined upon self-destruction; and, for this purpose, had swallowed above an ounce of laudanum, which she purchased at two different shops to prevent detection. She soon became alarmed, and informed her friends of what she had done; so that I saw her within an hour after the liquid was taken. When I entered, she was sitting supported in bed, her eyes were wild and staring, the face was flushed, the skin hot, the pulse, when it could be reckoned, 126, and the voluntary muscles strongly convulsed. Her mind was in a state of great confusion, at one moment she was sensible of her crime, called for assistance, at another she resisted the means used to save her. The violent action of the muscles occasionally relapsed, and was alternated by slight subsultus. No intimation of the nature of the case being given by the person who came for me, I had no medicines provided; I therefore endeavoured to excite vomiting by tickling the fauces with some feathers, which she bit through; the mouth was then gagged, and the same attempt repeated without success. As I had often heard of vegetable acids being used to counteract the deleterious effects of laudanum, I poured down a quantity of vinegar. I soon after procured a solution of a scruple of tartar emetic, which the patient was made to swallow; but as it did not act in fifteen minutes, she got two drachms of white vitriol in solution, which operat-

ed powerfully. Whether the smell of the laudanum was concealed by that of the vinegar, or whether it had passed the stomach, I know not, but, in the liquids rejected, none was detected. The vomiting was encouraged by warm water for a considerable time. Pain being complained of in the abdomen, a large emollient glyster was administered with much difficulty, from a contraction of the sphincter, and only a few small scybala were voided; a second was exhibited with more ease, but came away with little fæculent matter; and a third which was attempted late at night, could not be retained from relaxation of the sphincter. At eight o'clock the increased action of the system abated, and the delirium was succeeded by languor and indifference. The thirst was intense, but the stomach was so irritable that it instantly rejected whatever was taken. A large vesicatory was applied to the region of the stomach, and the patient was ordered out of bed. At eleven o'clock the lethargy had increased so much, that it required the utmost exertions to keep her awake; the pulse was 55, the breathing laborious, the countenance dark and ghastly, the eyes sunk and often shut, the muscles flaccid, the extremities coldish; no inconvenience was felt from the blister. Though the thirst was still excessive, and she always called for drink when roused, the stupor was so great, that she sometimes fell asleep with the basin at her lips. Sinapisms were put round both legs, two scruples of calomel, mixed with sugar, were given; diluents, soured with lemon-juice, were recommended in small quantities at once, till the vomiting which recurred when large draughts were taken, should cease; a large dose of castor oil was directed to be then given. As the great relaxation of the muscles required a person at each shoulder to drag her from place to place, and even to support her in her seat, the attendants were permitted to use every expedient they could devise for preserving her in activity.

On visiting at eight o'clock next morning, I learned that the castor oil had not been given till five o'clock on account of the continuance of the retching; that the bowels were soon after freely emptied; that the fæces were at first firm, of a feculent odour, and of a brown colour, afterwards liquid; that the drowsy state at the same time gradually subsided, when she felt acutely from the sinapisms, which were accordingly removed,

and were observed to have produced partial vesications. The plaster remained upon the region of the stomach, and caused much pain. The pulse was 70, soft and full; tongue clean; thirst great; no appetite; skin hot and dry; urine natural. She requested leave to sleep, which was granted, after the vesications were dressed with irritating ointment, to prevent her rest being too long. In the evening she complained of an acute pain in the lumbar region, and was in a profuse perspiration, which came on in the afternoon, after a sleep of two hours. She was ordered to support the back with a flannel bandage, and to avoid interrupting the perspiration.

25*th*.—She had slept soundly, and said she felt herself comfortable and free from pain in her back; the perspiration continued; the pulse was 70, rather feeble; the thirst was abated; the bowels were easy; no appetite. In the evening she was languid, her breathing was oppressed, her countenance was heavy, the perspiration was still profuse, and the thirst considerable. She had walked through the house, and her mind had been agitated by some reflections that were expressed respecting her conduct. She complained of debility and of pain in the abdomen. An ounce of castor oil was ordered, and a little warm brandy toddy occasionally.

26*th*.—She slept a short time during the night without refreshment. Pulse 80; tongue foul, with great thirst; no appetite; bowels freely evacuated by means of the oil; urine natural; pain of abdomen gone; much languor and lassitude. She complained of pain over the sternum on coughing. The ulcers on the legs were healed, that on the abdomen was ordered to be kept open. She was prohibited from rising out of bed.

27th.—She slept tolerably well, but in the morning felt weak, and looked stupid. Pulse slow and feeble; tongue foul; no appetite; bowels lax; urine natural; skin temperate. The brandy was discontinued, and the following mixture substituted,

℞ Æth. sulp.
Tinct. aromat.
Syr. simp. āā ℥ss.
Aq. pur. ℥iiss. m. cap. cochl. mag. 2da. q. h.

28th.—She was improved in strength by a good night's rest, and took some breakfast. Pulse 60; thirst gone; bowels cos-

tive; the pain at the sternum returned, so that a blister was ordered to be applied in the evening. The mixture which had been used irregularly, was desired to be continued.

15th May.—The pain of the chest was removed by the blister; the appetite improved, and she gradually increased in strength till the 2d inst. She then left town by my advice, and walked to a distance of eight miles, where she was not exposed to the causes which excited the rash action, and which still existed. By this removal, I understand, her mind, which was at the time in a state of imbecility, has recovered its former vigor.

Observations upon Herpes of the Prepuce.

Herpes of the prepuce is a disease trifling in itself, but of importance from the possibility of its being confounded with a much worse malady. That it is a disease of frequent occurrence I am persuaded, from the numerous cases I have met with, and that it has not attracted universal attention I am convinced, from various gentlemen having consulted me for this eruption, and having assured me they had formerly been put under mercury, from appearances precisely similar, in consequence of a belief that their symptoms had been venereal. I once knew a young gentleman undergo a severe course of mercury for what was called a cluster of obstinate small chancres, which only healed when the medicine was laid aside, by bathing the parts with a weak saturnine solution. I was lately consulted by a gentleman who had a cluster at the root of the prepuce, near its junction with the glans; he had a slight knowledge of medicine, and when I gave him my opinion that his complaint was not venereal, he was dissatisfied. He immediately, of his own accord, applied a quantity of calomel to the part affected, and rubbed mercurial ointment into the thigh. By this treatment the small vesicles burst, and afterwards united into one large ash-colored sloughy sore, exactly like a bad chancre. He was then certain he had an inveterate pox, and rubbed with all diligence to prevent constitutional contamination. He persisted in this practice for three weeks, when he rather cooled, as he saw his sore rather spread than contracted by the use of the calomel. He was now therefore induced to

wash it off with milk and water, and to desist from the abuse of mercury. The ulcer soon healed by mild treatment, and by keeping the parts clean.

To prevent as far as I am able the recurrence of such maltreatment, from the imprudence of the patient, or the inattention of the practitioner, I hope I shall be excused for communicating briefly the result of my observation upon this subject.

My attention was first turned to herpes upon the prepuce, by an intimate friend showing me it, when he was conscious he had been engaged in no sexual intercourse, pure or impure. I have since frequently seen it in all its stages, and under the same circumstances, in the same person; for he has been liable to a return two or three times annually, for a series of years. He has of late become careless about it, and generally uses no means to remove it, because he suffers little pain, unless the vesicles break, and the urine irritates the sores, at which time he is led to bathe the parts with a drying lotion. In a case like this, the patient is exposed to no risk, for being sensible he has no occasion for a mercurial course, he will not submit to one; but a medical practitioner may have his judgment called in question, by hinting that the venereal disease has been contracted, when perhaps the crime which leads to it is abhorrent to the patient's dispositions.

Herpes upon the prepuce begins with a tingling burning sensation in a part of that covering; in a day or two a cluster of very small distinct vesicles is perceived, with a redness of a florid color in the intervals, and surrounding the whole. If proper treatment be pursued the disease is repelled; if nothing be done to cure or to irritate, the vesicles increase a little in size, and become opake in four or five days, when the inflammation increases, and is followed by a constant disagreeable itching; in two or three days more, the pustules, which have become confluent, are converted into a scab, which drops off in a few days. So far as my experience extends, it is never preceded or attended with constitutional symptoms, as herpes zoster is.

Till lately I thought, as all the cases of this disease which had come under my observation were situated within the prepuce, and happened only in those whose prepuce covered the

glands, that it arose from the mucus there secreted becoming acrimonious, by inattention to cleanliness. I am now satisfied that this, if ever, is not always the cause; for at the time I received the last number of this Journal, my friend had a well-defined attack of it on the outside of the prepuce. The cluster was of an oval shape, and consisted of eight vesicles; which, as he did not interrupt their progress, became pustular, scabbed, and dropped off within a fortnight, leaving the cuticle beneath of a faded red color.

It is in the stage of vesicle that the patient is most apt to become alarmed, and by his conduct to change the character of this eruption so as to deceive his medical adviser. He feels an unpleasant sensation after an improper connection, he examines the part, and on detecting a number of blisters, he becomes uneasy; from modesty he is at first averse to disclose his situation; he looks frequently at the seat of the affection; he sometimes bathes it with the urine as it flows, and afterwards wipes it. By this treatment the tops of the vesicles are broken, and little sores are formed, which he shows to a practitioner; who, not aware that such a variety of herpes as this exists, joins in the patient's fears, and at once prescribes a course of mercury. This more readily happens if the patient has rashly used any corroding application. If, however, the diagnostic symptoms of herpes upon the prepuce and of chancres were adverted to, the patient's mind might be relieved from that anxiety which is common after every suspicious intercourse; for herpes does not resemble syphilis at its commencement so much as it imitates it when acrid substances have been employed to destroy its imaginary virulence. In herpes, the inflamed surface is of a florid color; the eruption is gregarious; the edges of the sores are smooth and regular, and their bottoms clean. In syphilis, the inflammation is of a copper colour; only one sore usually appears in one place; the edges of chancres are thick and ragged, and their bottoms sloughy. In herpes also the vesicles and subsequent sores are much smaller than in chancres.

The treatment of herpes upon the prepuce, which I have found most successful, either before or after the vesicles burst, is bathing the part frequently with a weak saturnine lotion, and defending it from the acrimony of the urine. If it be within or

upon the edge of the prepuce, by gently touching it with simple cerate. If the disease be situated on the outside of the prepuce, I would advise the penis to be surrounded with a cloth kept constantly moist with the above solution. The patient should be prohibited from increasing the complaint by irregularity of conduct, and from fretting the parts by his anxious examinations.

Notes on Diabetes Mellitus, as it occurs in Ceylon.

BY THOMAS CHRISTIE, M. D.

[From the Edinburgh Medical and Surgical Journal for July, 1811.]

THE enclosed notes on diabetes were written at Columbo in September 1809, a short time previous to my being compelled, from ill health, to leave Ceylon, and were intended for insertion in a work relating to some of the diseases of that island, the publication of which has been deferred.

If you should think them worthy a place in your Journal, you will oblige me by inserting them in the form in which they were originally written, at a time when I had an opportunity of ascertaining the actual state of most of the patients, by personal inspection.

Since my return to Europe, I have been made acquainted with cases of diabetes treated successfully by Dr. Watt and others, by venesection, and means apparently opposite to what I have been accustomed to employ, with such striking success, in Ceylon; but as I have had no personal experience of the mode of treatment recommended by Dr. Watt, I can only conclude with him, "that in medicine there are different ways of accomplishing the same end."

Cheltenham, 25th April, 1811.

Columbo, September, 1809.

ALTHOUGH I have not the honour of Dr. Rollo's acquaintance, I had intended to send him these, and some other cases of diabetes, as a confirmation of his train of reasoning, and of

the successful practice he had the merit of introducing in this formerly fatal disease; but as the subject has been casually introduced here, and I have reason to believe that diabetes occurs much more frequently with the inhabitants of this island than in Europe, I think a succinct account of all the cases of diabetes I have met with at Columbo will be acceptable to my readers, and particularly to those gentlemen who may have occasion to practice in Ceylon.

The first case of this disease I treated at Columbo, was in a native of rank, Don Louis de Saram, second maha moo-deliar under this government. He applied to me in the month of June 1804, after having laboured under diabetes for twelve months, and being much reduced in flesh and strength. He had a voracious appetite, with constant thirst, and his urine was in great quantity, yielding a great proportion of saccharine extract. He had also a burning sensation in his stomach; uneasiness in the region of the kidneys; heat in the soles of the feet and palms of the hands; a dry skin; loss of his venereal powers, but no phymosis; his pulse and bowels natural.

He was immediately put upon animal regimen, which I have reason to believe he observed religiously, and ordered hepatized ammonia, lime-water, and pills with digitalis and opium. In a few days his urine was reduced to the natural standard, but lost its saccharine taste and peculiar smell. His other symptoms also more gradually disappeared, and he rapidly recovered his strength and flesh. In three months, having perfectly recovered his health, having increased in weight about 21lb., and being restored to all his functions, he was allowed to eat one meal of rice daily; and no relapse ensuing, he was soon afterwards permitted to return to his usual diet, which consists, in a great degree, of rice, fruit, and fish.

He has since occasionally applied to me in consequence of a slight increase of urine, which is easily removed, by resuming for a few days his animal diet, and taking a few pills, with a small proportion of digitalis and opium, which I have prescribed chiefly as a placebo, for the purpose of inducing him to persevere in his regimen. At the time of writing this note, September 1809, he enjoys excellent health, and although corpulent, is very active for a man of his age, which is now fifty-five.

My second patient, Don Juan Appoo, aged 49, a Cingalese, and physician by profession, had only had the disease seven months, but was still more reduced than my former patient. On the 12th of January 1805, when he first applied to me, his urine amounted to twelve pints, one pint of which yielded 2 oz. of saccharine extract, of the appearance and consistence of treacle. His emaciation was great, with a dry wrinkled skin, and sense of heat in the stomach, soles, and palms. His appetite various, with constant thirst, parched tongue, and costive bowels. Pulse quick and small. Phymosis, et coitus nullus. Weight 97lb.

He commenced the animal regimen on the 13th, and was ordered half a drachm of kali sulphuratum, and a pint of lime water daily. In this case the change in the quality of the urine was more gradual, and on the 25th it still yielded a little saccharine extract; when, in addition to the other medicines, he was ordered a grain of opium and digitalis, twice a-day. On the 5th February it only amounted to six pints, having a saline taste and smell, and yielding a little more animal extract than healthy urine. At this time also, all his symptoms had greatly diminished, and his appearance was much improved. On the 15th of March, all his symptoms having left him, and his weight being increased to 127 pounds, he was permitted to eat rice once a-day.

On the 16th of April, when he was desired to leave off medicine, I made the following report:—"My patient has persevered in the use of his pills and lime-water, and only eats of rice once a-day, when he consumes about one half measure, equal to one pound of the unboiled grain; at other times he eats animal food, of which he now uses more than two pounds daily. He has had no return of saccharine matter in his urine, which has a saline smell and taste, but yields rather more animal extract than healthy urine. It amounts to two or two and one-half quarts daily, and he thinks it generally increases somewhat every second day, when he bathes. He is now perfectly free from all complaint, has a healthy and robust appearance, and his skin soft, and flesh firm. His weight to-day is 136 pounds, being an increase of nine pounds since the 15th of March, and thirty-nine pounds since the 13th of January, when he commenced the animal regimen. This patient now returned

to his usual diet, notwithstanding which his weight was found to have increased to 140 pounds on the 24th of June 1805; and he continued in perfect health till about the 20th of November 1806, when he was seized with febrile symptoms, succeeded by debility, sense of heat in his stomach, thirst, pain in his joints, and increased flow of urine, which on examination was found to contain saccharine matter. On the 4th of December, he applied to me for these symptoms, when his weight also was found to have decreased to 124 pounds.

"On resuming the animal diet, and the use of the kali sulphuratum, his symptoms almost immediately left him; and in the middle of January 1807, he was again discharged, free from all complaint, his weight having increased to 137 pounds."

At the time of writing this note, he enjoys good health, although he looks more emaciated than in 1807, and says he has occasional increase of urine, when obliged to live very much on vegetable diet, which the state of his circumstances sometimes requires. This man used formerly to practise chiefly amongst small-pox patients, of which he has not seen a case for the last three years, and is in consequence obliged to keep a school as a means of subsistence. It is a remarkable coincidence, which I hope I shall be excused for mentioning, that Don Juan, who in all appearance owes his life to one of the modern improvements in medicine, has lost his usual means of subsistence by a still more important one. It will be anticipated, that I allude to Dr. Jenner's great discovery of vaccination, which has been extended to upwards of 120,700 persons on this island; the inhabitants of which, previous to its diffusion, used to suffer dreadful ravages from small-pox, which they now only know by name.*

My third diabetic patient, Cornelius Gomez, aged 50, applied to me in 1805, but only persevered in the animal regimen for a few days; during which, however, his urine was diminished in quantity; when, getting tired of my prescriptions, he

* At the time these observations were written, the small-pox had not existed in any part of Ceylon for upwards of eighteen months. In the October following, the contagion was imported by a boat from Quiloa to Jaffnapatnam, but only affected a few individuals there who had not been vaccinated. —24th of April, 1811.

withdrew himself from my care, and went to a distance from Columbo. On inquiry, I learn that he is still living, and that he has occasionlly resumed the animal diet with benefit, but being irregular in pursuing any plan, the symptoms of his disease have increased, with extreme emaciation and debility, and his appetite having failed, his native physicians do not expect him to survive long.

A fourth patient, Don Johannes, aged thirty-eight, placed himself under my care, on the 12th of May 1805, when I made the following report in my notes: "At present, a thin spare man, but says, that until lately he was robust and lusty, and that he enjoyed good health till within these seven months, when his urine became increased in quantity, and for four months past he has had an unnatural appetite. He now makes above six quarts of urine daily, which yields a considerable quantity of saccharine matter, and he eats about three measures of rice (six pounds of dry grain) in a day, which is three times the quantity he was accustomed to consume when in health. He complaints of a sense of heat in his stomach, which is frequently distended with flatus, and also of a sensation of heat and creeping in his palms and soles. He likewise feels some uneasiness in the region of the kidneys. Belly regular; pulse eighty, and soft; tongue appears dry, and he complains of thirst. Skin is however soft, and he perspires as usual, on taking exercise. He says that two of his relations have died of this disease, and that he has taken a great deal of medicine from Cingalese physicians, without benefit.—Weight 106 pounds.

He was immediately put on the animal regimen, and ordered a solution of kali sulphuratum, with pills of opium and digitalis, and in three weeks his urine was of the natural apperance and quantity. On the 13th of June, his symptoms were nearly all removed, his appearance greatly improved, and his weight somewhat increased. On this day he returned to his usual residence at Bentolle, thirty-six miles distant, with strict injunctions to persevere in his animal regimen and pills.

On the 6th of August he returned to me, complaining of his urine having again increased in quantity, with a saccharine taste; and upon being questioned, he allowed, that soon after he went home, he commenced eating a little rice twice a-day.

He was again put on the animal diet, which speedily removed his symptoms; and, at the end of the month, he returned a second time to Bentolle free from complaint, and increased in weight 13lb. since he began the treatment. In passing Bentolle in the December following, this patient waited on me, with a present of fruit, when he assured me he continued well; but I have lately heard that he latterly took to dram-drinking, and is since dead. His relations assure me, that the disease which carried him off was dysentery, and that he had no return of sweet urine.

A fifth patient, a Portuguese priest, named Philippe Nera, aged 52, applied to me in July 1805, having been affected with slight symptoms of diabetes mellitus for about a year. As he was a man of information and strong mind, I explained to him my ideas of his case, or rather the reasoning of Dr. Rollo, and the beneficial effects we had experienced here from the animal regimen, which he promised to pursue. As his symptoms, however, were slight, he did not confine himself entirely to animal food, but ate an increased proportion of it, from which he experienced great benefit. He was recalled to Goa before his case had terminated, but his colleagues here informed me, that he now enjoys good health.

A sixth case occurred in Mrs. Laurenty, aged 40, the wife of a Dutch surgeon, who attended the family of my first patient, and took notes of his case when under my treatment. She had at this time been affected with diabetes for several years, from which she was greatly reduced, and made daily above six quarts of straw-coloured sweet urine, which readily fermented. Amongst other symptoms, she had an intolerable sense of heat and itching at the meatus urinarius, attended with sterility, since the commencement of her complaints. As soon as the good effect of the animal regimen was evident with Don Louis de Saram, she was put on a similar course, and in a few months perfectly recovered her health. She has since had two children, and assures me that at the present time she is free from all complaint.

A seventh case was treated conjunctly by Dr. High, staff surgeon at Columbo, and myself; and in this case we determined to trust entirely to animal diet, prescribing no medicine, but

an emetic in the first instance, and afterwards castor oil, to keep his bowels regular. On the 12th of January 1806, when he first placed himself under our care, I find I made the following report.

"Don Simon, aged 48, was healthy and corpulent till within these eight months, when he was seized with cold shivering, and an attack of fever, followed by a great flow of urine, and other symptoms of diabetes. At present he is considerably emaciated, and complains of great debility, with an insufferable burning sensation in the region of the bladder, and in his palms and soles. He also complains of excessive thirst, and in the last twenty-four hours drank sixteen pints of water. His appetite was at first bad, but is now voracious, and he yesterday consumed $1\frac{1}{2}$ measures, (3lb.) of dry grain of rice, besides a proportion of biscuit, fruit, fish, and beef. He yesterday made about twenty pints of straw-coloured fermentable urine, which when boiled, yielded about 5lb. of extract like treacle. His belly is very costive, and he occasionally passes ascarides; pulse 100, and feeble; tongue appears moist, but he has been chewing betel; he sleeps badly, which he attributes to the burning sensation and general pains; his skin is rather hot, but moist, and he sweats on taking exercise. He is said to be a sober man, and not addicted to the use of arrack or toddy,* but was accustomed to drink milk and country sugar before his illness, and since has

* Toddy is the liquor which distils from the fruit-stalk or spadix of the cocoa and other palms, the extremity of which is cut for that purpose, before the spatha or sheath containing the flower bursts. Earthen pots are fastened to receive the toddy, which is removed morning and evening. When first drawn, it is an innocent, not unpleasant beverage, resembling honey and water, with a peculiar smoky taste; but after being kept a few hours, it ferments and becomes an intoxicating liquor. In this state it is much drank by the soldiers, and many natives, and is also collected for the distillation of arrack, which is a principal article of export from Columbo and Galle. The cocoa-nut water, or milk, is the juice contained in the shell, and which, in a young, but full grown cocoa-nut, amounts to more than a pint, and is a pleasant cooling beverage, not unlike whey, but containing more saccharine matter. A Cingalese peasant, when he travels, generally carries two or three young cocoa-nuts with him, which often form the whole of his refreshment during the day. He drinks the milk, and afterwards eats the young kernel, which is in the state of a soft sweet pulp, adhering to the shell, from which he scrapes it with his hand, or makes use of part of the shell or husk as a spoon.

indulged much in cocoa-nut water. For the last eight months he has had a most complete phymosis, and total incapacity for venery, though previous to that period he exercised all his functions with vigour. Weight 107lb."

Soon after commencing the animal regimen, his urine was reduced to nearly the natural standard and appearance, and all his symptoms gradually, but regularly, gave way. On the 12th of February, Doctor High made the following report:

"Meat, 5lb.
"Drink, 6lb.
"Urine, 4½lb.

"Says his urine has entirely lost its sweetness, and the extract from lbij. does not exceed an ounce, and though in appearance like treacle, has a saltish taste; heat in the palms and soles less; numbness, of which he has complained for the last twelve days, is also less troublesome; sleeps better, and gains strength, having for the last fortnight walked above three miles daily; appetite and thirst more natural; bowels still costive; the uneasiness about the back and belly much better; pulse 98; tongue and mouth appear natural; phymosis has almost entirely left him; weight 115lb., so that he has gained 8lb. during the month."

The last regular report of him is on the 19th February, when he was still better and stronger than on the 12th, and towards the end of the month, he returned to his residence at Cultura, free from complaint.

This patient returned to Dr. High on the 18th of May 1807, when he said he had remained well till March 1807, in which month his symptoms again returned, but with less violence. On resuming the animal diet, they again left him, and did not return till April 1809, when they were a third time removed by the same plan, and at present he enjoys good health.

An eighth patient, Pedro Silva Bernardo Chitty, aged 40, placed himself under my care on the 25th of January 1808, when he made daily upwards of seven pints of urine, yielding about 1lb. of extract like treacle, and had all the other usual symptoms of diabetes. His weight was 114lb. In this case, I also trusted entirely to animal diet, prescribing only as a placebo, pills composed of magnesia. His urine soon assumed the natu-

ral appearance; and on the 28th of February he reported himself free from all complaint, although he was diminished in weight, being only 104lb., which was probably owing to his eating little in consequence of his dislike to animal regimen, since the commencement of which his bowels had also been remarkably open. On the 16th of March, having had no return of his symptoms, and a great dislike to the animal diet, he was allowed one meal of rice in the day. On the 8th of April he continued well, and was permitted to resume his usual diet of rice, fish, and curry, and only prohibited from fruit and fresh vegetables. In May, his health being perfectly good, and his weight 130lb. he was allowed to return to his usual mode of life; and on the 24th of June, when he left off attending me, I made the following note:

"Since last report he has lived as usual, eating chiefly fish, rice, and vegetables, which he does in considerable quantity, and with good appetite. He has not had the smallest return of his diabetic symptoms and appears robust, strong, and plethoric; his weight is now 137lb., being an increase of 23lb. since he began the animal regimen, and of 33lb. since the 28th of February."

At the time of writing this note, I sent for this patient, who assured me that he enjoyed tolerable health, although, from misfortunes in life, he had been obliged to live frequently on a spare vegetable diet, which increased the quantity of his urine, and occasioned emaciation, but of these symptoms he was always free when enabled to eat a meal or two of animal food daily.

While writing this note, my highly respected friend Dr. High, who, as well as many of the other medical gentlemen at Columbo, has seen most of these patients, brought me a ninth case of diabetes, of which, in his presence, I made the following report.

"Ranma Poelly, a Chitty, aged 36. 11th September, 1809.—Applied to Dr. High on the 3d of September for diabetes mellitus, which he had had for twelve months, and which had occasioned great emaciation and debility. He at that time drank nearly nine pints daily, and made about thirteen pints of straw-coloured urine, which fermented, and when boiled yielded about 14oz. of saccharine extract like treacle. He had also consider-

able thirst, and a voracious appetite, pain in the kidneys, and some degree of phymosis. Belly costive. Weight on the 3d, 124½lb. He has since the 3d restricted himself to animal diet, with the exception of 4oz. of bread daily, and he feels himself much stronger, and is improved in appearance. Urine about 5½ pints, without any sweet taste, and yields comparatively very little extract, although it has not the strong ammoniacal smell of healthy urine. Thirst and pain in the kidneys gone; appetite natural; bowels more open; weight on the 9th was 126lb."

I have seen two more cases of diabetes at Columbo; the one a Gentoo named Vera Pattren, aged 50, applied to me in 1806, when he was much reduced by the disease, which had, however, lasted only four months. On being informed that medicines would be of no use, unless he could conform to strict animal regimen, he declined placing himself under my care, alleging as an excuse, the injunctions of his religion; and the native doctor who attended him, informs me, that he died of the disease a month afterwards.

The last patient, named Johannes de Silva, is now ill at Columbo, and has once applied to me, but cannot summon resolution to submit to the animal regimen, and at present is taking Cingalese medicines; but says he will place himself under my care if he does not soon get better. He is sixty years of age, and very much reduced in strength and appearance, so that I have no great expectations of his ever enjoying good health, even should he adopt the animal diet.

The result of these cases so perfectly agrees with the observations and reasoning on diabetes mellitus contained in the excellent work of Dr. Rollo, that it would be superfluous to add any remarks whatever to the simple statement of them, did it not appear necessary to mention some particulars as to the mode of living and habits of the people of this place, which may perhaps tend to account for the greater frequency of the complaint, and its more certainly and readily giving way to animal regimen, than could be expected in Europe.

In addition to the occurrence of so many cases of diabetes in my own practice, which with the Cingalese is very limited, I have the testimony of several native doctors, as to its being by no means an unfrequent disease with the inhabitants of this

part of Ceylon; and from the circumstance, of the natives of Hindostan living chiefly on rice and vegetables, some of the casts being entirely interdicted the use of animal food, I had conceived, that it must be equally frequent on the continent of India; but from my friend Dr. William Hunter of Calcutta, who is well acquainted with the diseases, as well as with the literature and customs of the natives of Bengal, I learn, that although the diabetes mellitus is described in the books of both Hindoos and Musselmans, under a similar name as in Ceylon, he has never met with an instance of it at Calcutta, which convinces me that it is by no means so frequent in Bengal as in Ceylon, and I think a satisfactory reason may be found for this in the different articles which compose a great part of the food of the Cingalese.

The injunctions of the religious of Boudha, are by no means so severe as of that of Bramah, in the prohibition of animal food, since even the Boudha priests may eat of it, provided it has not been killed by them, or by their order; but this interdiction of not depriving any animal of life is applicable to all the Boudhists of high cast, and in a certain degree the prejudice extends to the lower orders, and even to some of those who profess Christianity; besides which, meat, particularly mutton, is comparatively very scarce and dear at Columbo.

The bulk of the people, therefore, in the vicinity of Columbo, consume, I believe, less animal food than in most parts of India, and certainly far less grain, which, from the nature of the soil, and the state of cultivation round Columbo, is not produced in nearly sufficient quantity for the subsistence of the people. A considerable quantity of rice is imported from Bengal, and other parts of India, but the poorer orders have seldom the means of procuring much rice, and live a great deal upon yams and sweet potatoes, jack-fruit, plantains, or bananas, and particularly cocoa-nuts, which form a great part of the subsistence of the people in the corles, or districts, dependant on Columbo. These all furnish sugar ready formed, and in greater abundance than rice, besides which they use a great deal of country sugar or jaggery, prepared from the toddy of the rittiel palm (caryota urens), which is very cheap, and forms an article of export from this place.

As a strong corroboration of my opinion, that it is owing to

the immoderate use of these articles that the Cingalese are so subject to diabetes, it ought to be mentioned, that during nine years, in which I have received the hospital returns of all the European and native troops on Ceylon, not a single case of diabetes had occurred amongst them, although the number of men has in general been about 7000, and that of sick has been on an average upwards of 500. The Europeans have beef served out to them daily, and the natives receive a liberal allowance of rice, on which they chiefly live.

If it should be allowed, that the natives of Ceylon are more exposed to attacks of diabetes in consequence of their using little animal food, and subsisting chiefly on articles furnishing a great deal of sugar, it will readily be understood, on the general principle, that the system is acted on most powerfully by those causes to which it is least accustomed; that the abstraction of all articles of diet which contain sugar, or from which it is likely to be formed, with the substitution of an animal regimen, will be more likely to produce an immediate change on the state of the urine and digestive powers, than with Europeans who have been accustomed to a more considerable portion of animal food in their ordinary diet.

Few of the people of Ceylon, who are plain and simple in their general mode of life, are ever disposed to indulge much in luxury of the table; so that unless it interferes with their religious principles, or with the state of their circumstances, a change of diet is with them a subject of little consideration; and on that account I have found less difficulty in prevailing on them to comply strictly with my injunctions; which in general went to the entire prohibition of every thing but animal food of different kinds, dressed with ghee, or clarified butter, and water, with or without the addition of a little brandy.

It ought to be remarked, that in all my patients there was an increased appetite. Had they been in that advanced stage of diabetes in which the appetite fails, it might have been dangerous to abstract so suddenly all their accustomed articles of food, and advisable only to adopt the animal regimen gradually or partially.

In some of the cases it is noted, that the quantity of urine was increased on the days the patient bathed, and in others,

that the quantity of urine exceeded that of liquid drank; from which it might be conceived, that I was of opinion that absorption of fluid takes place from the skin in this disease; and it is therefore necessary to remark, that I have had no distinct proof of this, for the quantity of water contained in the articles of food, particularly boiled rice, was much more than would account for the excess in the quantity of urine above that of liquid drank, and the variation of quantity on the days of bathing was so slight, that in all probability it might be owing to other causes.

The partiality of the Indians to frequent ablutions is well known, and I generally permitted them to bathe as usual during the whole course of treatment, by which indulgence I more readily procured their observance of my other directions; and by keeping the skin soft and clean, I rather thought it promoted the cure. It was performed, as is usual with the natives, by standing up to the breast in a pool of fresh water, and pouring it repeatedly over the head; but as the water is generally above the temperature of 80 of Fahrenheit, it cannot be considered in the same light as the cold bath or affusion in Europe.

It is probably owing to the frequent use of the bath amongst the natives, that I have less frequently met with dry wrinkled skin, or phymosis, than I had been led to expect from the perusal of the cases collected by Doctor Rollo.*

I have been at some pains to learn what is said in the Cingalese books† of the diabetes mellitus, or *madu mehé* (honey urine) as it is there called, and, with the assistance of my friend

* The warm and uniform temperature at Columbo, where Fahrenheit's thermometer rarely sinks below 70, or rises above 86, may have contributed essentially to the favourable termination of the cases of diabetes treated there. Might not an artificial temperature, which has of late been successfully used in Great Britain in pulmonary complaints, be also employed with advantage in diabetes? 24th April, 1811.

† My attention was first directed to those on the subject of diabetes by my second patient Don Juan, who said he was well acquainted with his own disease, which was described in the Cingalese books, under the name of madu mehé, as an incurable disorder, and that his own experience confirmed this opinion; for that, although he had often seen the disease, he had never known any person recover from it, except Don Louis de Saram, my first patient.

and relation, Mr. William Tolfrey, who is well acquainted with the language, I procured the following translation, or rather abridgment, from the *Yoga Ratnakêre*, or collection of valuable prescriptions, a book written in Cingalese verse, and said to be translated from the Sanscrit by Monara Gamuwa Unnanse, who lived in the 16th year of Bowenaka Bahu, king of Ceylon, who reigned upwards of 300 years ago, and previous to the settlement of the Portuguese in the island.

As many of the words are derived from the Sanscrit and Pali, the learned language of this island, Mr. Tolfrey cannot be answerable for the correctness of it in every respect; but I shall subjoin it here, as a curious specimen of what kind of information may be procured from the Cingalese medical books, which in many respects will, I conceive, be thought to resemble the dogmas and subtilities of the Galenic school.

The *pra mehé*, or diseased flow of urine, is divided into twenty species, of which ten proceed from phlegm, and are easily cured; six from bile, which may also be cured with care; and four from wind, which last are incurable.

The ten species proceeding from phlegm are,

1st, Udaka mehé.—*Udaka* in Sanscrit and Pali signifies water, and the symptoms are a flow of very clear urine, cold, without smell, like water, and discharged without pain, with a little slime.

2d, Ikshu mehé.—*Ikshu* Sanscrit and *utchu* Pali, means the juice of the sugar cane, and the symptoms are slimy cold urine, like that juice.

3d, Sura mehé.—*Sura* in Sanscrit and Pali signifies toddy,* and in this the urine resembles toddy, and on being kept deposits a similar sediment.

4th, Sandra mehé.—*Sandra* in Sanscrit signifies thickness, and in it the urine, after being allowed to stand a night, is thick.

5th, Pishta mehé.—*Pishta* Sanscrit, *pitha* Pali, signifies flour, and in this species the urine, after standing a night, deposits a

* For an explanation of the word toddy, see note, p. 72. The urine of diabetic patients in the climate of Ceylon never fails to ferment on being kept a night; and in this state it bears a striking resemblance to toddy, which has undergone a slight degree of fermentation.

sediment white as flour, and of very little weight. Another symptom is, that when the urine is passed the hair of the body stands on end from pain.

6th, Sukra mehé.—*Sukra* Sanscrit, *suka* Pali, signifies semen, and in this the urine is discharged with a mixture of semen, which it resembles in colour.

7th, Saikta mehé.—*Saikta* Sanscrit, *sikata* Pali, signifies sand, and in this species small round particles of phlegm are discharged with the urine, resembling sand.

8th, Sita mehé.—*Sita* in Sanscrit, Pali, and Cingalese, signifies cold, and the symptoms of this species are extremely cold and very sweet urine.

9th, Samairiam mehé.—*Samairiam* in Sanscrit, signifies drop by drop, and the symptom is, the urine being passed drop by drop.

10th, Alala mehé.—*Alala* Sanscrit, *lala* Pali, signifies saliva, and the symptoms are urine mixed with particles of phlegm, in the shape of small threads, and slimy like saliva.

The six species proceeding from bile are,

1st, Manjesta mehé.—*Manjesta* Sanscrit, *manjutta* Pali, is the name of a red seed, and the urine in this species is of a reddish colour, and has a fishy smell.

2d, Rakta mehé.—*Rackta* Sanscrit, *ratha* Pali, signifies blood, and the urine in this species is of the colour of blood, feels hot, tastes salt, and has a fishy smell.

3d, Nila mehé.—*Nila* in Sanscrit and Pali, signifies blue, and in this species the urine is of a bluish colour.

4th, Hariddra mehé.—*Hariddry* Sanscrit, *halliddy* Pali, signifies yellow, and in this species the urine is of a yellow colour, of a sharp taste, and discharged with heat.

5th, Rala mehé.—*Rala* in Sanscrit and Pali signifies black, and the urine in this species is of a sooty colour.

6th, Kshara mehé.—*Kshara* Sanscrit, *kara* Pali, signifies saltish, and in this species the urine is to the smell, taste, and touch, like sea-water.

The four species proceeding from wind are,

1st, Wasa mehé.—*Wasa* in Sancrit and Pali signifies fat, and in this species the urine is discharged frequently, either mixed with fat, or entirely composed of an unctuous substance.

2d, Mudja mehé.—*Mudja* Sanscrit, *minja* Pali, signifies marrow, and in this species the urine is discharged frequently, and resembles marrow, or is mixed with that substance.

3d, Hasta mehé.—*Hasta* Sanscrit, *Hutty* Pali, signifies elephant. The urine in this species is discharged frequently, and with difficulty, resembling the semen of a ruttish elephant, or the liquor of the joints.

4th, Madu mehé.—*Madu* in Sanscrit and Pali, signifies honey, and in this last species the urine is of the color and taste of honey.

In the *Bayajja Manjussy*, or Medicine Chest, another work more lately translated from the Pali, the same account is given of the different species of *mehé;* and it is said they are occasioned, amongst other causes, by whatever produces much fat urine or phlegm, as indolence, eating cold and sweet things, and food of a watery nature. The more immediate causes of the *madu mehé*, are either decrease of the substance of the body, and excess of wind, or the wind's being obstructed and mixed with the blood; on which account it is incurable. The distinguishing symptoms of the four species of *mehé* proceeding from wind, are flatulence and eructation, tightness of the chest, tremor, pains, restlessness, emaciation, and difficulty of breathing.

The only remedy recommended for *madu mehé*, is pills composed of seventeen ingredients, amongst which are the following: Sulphur, nitre, borax, sal ammoniac, yellow arsenic, cinnabar, capsicum, black pepper, and several other vegetables with which I am unacquainted.

Although the above division and distinctions of the *pra mehé*, which seems to include all the diseases of the urine, is arbitrary, and often fanciful; yet it is a curious circumstance, that the Indian physicians should have described so distinctly the sweetness of the urine in *madu mehé*, which had escaped the observation of both the ancient and modern physicians of Europe till the time of Willis.

Analysis of the Cactus Coccinillifer.

BY JOHN BOSTOCK, M. D. LIVERPOOL.

[From the Edinburgh Medical and Surgical Journal for July, 1811.]

In one of the late numbers of your Journal,* you give an account of some observations that have been made in the East Indies on the cactus coccinillifer, both as an article of nutrition, and especially as possessing antiscorbutic properties. You conclude by expressing a wish that some one would endeavour to ascertain whether it contains any citric acid, and it was principally with this intention that the following experiments were performed. A portion of the leaf of the cactus, which weighed 100 grs. was cut into small pieces, and was then strongly agitated in a bottle with ℥i of water. It was then squeezed through a linen strainer, and nearly one ounce of a mucilage was procured, which was of about the consistence of albumen ovi, and was so tenacious, that is was scarcely possible to divide it into separate portions. Another ounce of water was then added to it, and it was again strongly agitated in a bottle, by which means it was reduced to a consistence similar to that of the serum of the blood, and in this state was made the subject of experiment. The residue of the leaf, that had not passed through the strainer, weighed 73 grs. but after being for some time exposed to a gentle heat, it was reduced to a little more than 5 grs. The mucilage was nearly transparent and colourless, and without any peculiar taste or smell. It remained for a considerable time exposed to the atmosphere, without undergoing any alteration; but gradually it deposited a small quantity of a flocculent matter, and acquired a slightly putrid odour. Although the consistence of the mucilage appeared to be very nearly the same with that which is produced by dissolving one part of gum Arabic in ten parts of water, yet it was found, upon evaporation, to contain not more than 1-100th of its weight of solid contents. There was an obvious difference between the consistence of the cactus mucilage and that from gum Arabic; a difference which, I conceive, will be comprehended, by stating that the latter is more

* No. 20. Vol. V. p. 481.

glutinous, and the former more tenacious. In this respect the mucilage of the cactus approaches to that of linseed. The mucilage, although it appears to be indefinitely soluble in water, is not easily incorporated with it; but by strong agitation in a bottle a complete union may be formed. By the test of litmus, the mucilage was found to be very slightly acid. The quantity of acid was so small, that 250 grs. had its acid apparently neutralized by one drop of a solution of potash, formed by dissolving one part of the kali purum of the pharmacopœia in four parts of water; the addition of three drops caused the mucilage to be decidedly alkaline. This acid could not be the oxalic, because the oxalate of ammoniac threw down a minute quantity of a powdery precipitate, proving that the fluid contained lime. In order to ascertain whether this lime was united to an excess of citric acid, lime-water was gradually added to convert the supercitrate into the citrate of lime, but no precipitate was produced. To try whether it was the tartaric acid which existed in the mucilage, potash was added very gradually, but no precipitate was formed. I do not, indeed, conceive that these experiments prove the absolute non-existence of either the citric or tartaric acids, because the methods employed for detecting them do not appear applicable to discover them when in every minute quantity. This, indeed, appeared to be the fact; for when very dilute solutions of the citric and tartaric acids were formed, neither the lime-water in the one case, nor the potash in the other threw down any precipitates. I conceive, however, that we may be warranted in concluding, that the power of the cactus coccinillifer does not depend upon any acid which it contains. I afterwards examined the action of some of the re-agents, which I had formerly found to produce peculiar effects upon different vegetable mucilages. Although lime-water did not throw down any of that powdery precipitate which indicated the formation of the citrate of lime, yet I observed, that after lime-water had been for some time in contact with the mucilage, the sides of the glass were coated with what appeared to be small particles of gummy matter; and I found the same effect to be produced in a greater degree by barytes water. It would appear to arise from a weak action between the mucilage and the earth, by which a partial separation is produced of the vegetable matter

from the water that holds it in solution. When alcohol was added to a mucilage of about the consistence of serum, that is, when it contained about 1-200th of its weight of solid matter, the two fluids were incorporated by agitation in a bottle, without any visible change being effected; but when the mucilage contained 1-100th of its weight of solid matter, the alcohol separated it in the form of a spongy mass, without rendering the fluid in any degree opaque; in this respect agreeing with the mucilage of linseed, and differing from that of gum. The oxymuriate of tin, and the nitrate of silver, also formed a spongy precipitate, while the acetate of lead produced a copious dense precipitate. Silicated potash, the oxysulphate of iron, and the nitrate of mercury had no effect on the mucilage.

These experiments show, that the substance which enters so largely into the composition of the cactus coccinillifer is, in most respects, similar to the mucilage of linseed, and that, if the distinction which I formerly* pointed out between gums and mucilages is to be considered as having any foundation, the substance in question must be placed in the latter class.

The effects of the re-agents differ so much in almost all the varieties of gums and mucilages, that we are led to inquire, whether this depends upon a peculiar action which is exerted between the gum itself and the re-agent, or whether it may not depend upon the extraneous bodies which are known to exist in gums? Gum Arabic, for instance, contains a considerable quantity of lime, and possesses the singular property of precipitating silicated potash; does the effect in this case depend upon the gum itself, or upon the lime which is combined with it? To ascertain this point I added oxalic acid to the mucilage of gum Arabic, until all the lime was separated in the form of the oxalate. It was then diluted with water, so as to permit the precipitate to subside, and was afterwards evaporated to its former consistence. Oxalic acid now produced no effect upon it, and yet it still precipitated silicated potash. We may, therefore, conclude, that there is a specific action exercised between gum Arabic and silex. There can be no doubt that when the acetate of lead is added to gum, an union takes place between the gum

* Nicholson's Journal, 18, 38.

and the lead, because the water of solution is obviously deprived of its viscidity. I endeavoured to ascertain the proportion in which gum Arabic and lead unite: In one experiment 50 parts of gum united to 35 of lead; and in a second, 30 parts of gum to 20 parts of lead; but there is always some uncertainty in operating upon vegetable substances, from the difficulty there is in separating the precipitates from the fluid, and reducing them in the same degree of dryness. Besides, I am disposed to conceive, that in this, as in many analogous cases, the nature of the compound is influenced by the circumstances under which the experiment is performed.

Knot's hole Bank, near Liverpool,
April 27th, 1811.

SELECTED REVIEWS.

Some Observations upon Diseases, chiefly as they occur in Sicily. By WILLIAM IRVINE, M. D. F. R. S. Ed. of the Royal College of Physicians of London, and Physician to his Majesty's Forces. 8vo. pp. 120. London, 1810.

[From the Edinburgh Medical and Surgical Journal for July, 1811.]

THOSE medical writings, which present us with a view of diseases, under various circumstances of climate and different modes of life, delineated upon the spot by a diligent and faithful observer, afford us the most agreeable exercise of our critical function. They not only interest us by the novelty of the facts which they communicate, but they serve as a sort of touchstones, by which we may ascertain the value of our theories and practical precepts, as they result from the limited views to which our own local situation necessarily confines us. The sound sense and unaffected perspicuity of language, which are manifest on opening this little volume, led us to anticipate much satisfaction from Dr. Irvine's observations; and the perusal of the work, which, we think, in proportion to its extent, may not shrink from a comparison with that of his learned predecessor in the same climate, Dr. Cleghorn, fully justified our anticipations. The only imperfection in the value of these observations which can suggest itself, arises from a doubt, which is left upon the mind of the reader, relative to the length of time during which they were collected. They are detailed in a terse and aphoristic style, as if they were the result of a long and cautious induction, which had comprehended so large a view of the influence of the seasons, and of the physical, moral, and political circumstances of the people, as might serve for the ground of an ample generalization. And, indeed, there is so much consistency in the observations in general, not only among themselves, but with the results of modern experience, under the direction of the ablest inquirers elsewhere, that we trust they are the inferences from a most ample research. All that we learn from the author, upon this point, is contained in a sentence or two

in the preface; where he states, that the number of patients that have been under his treatment "has been very large;" and that "in the course of two months only, September and October 1808, there passed under his superintendence 163 patients, of whom 55 had continued fever, 50 intermittents, and 29 dysentery, for the greater part important and formidable cases."—"Few opportunities," he adds, "occur where, during an equal period, more ample or satisfactory experience could be presented." The patients were lodged in a building, admirably adapted to the purposes of an hospital, which was formerly the College of Jesuits at Messina; and the management of them was left to the uncontrolled direction of the physician in every respect.

In the first chapter, Dr. Irvine treats of "the climate of Sicily," and the other circumstances which constitute what has been called the *medical topography* of the island. The chief peculiarity of this climate, which is included between 36° and 38° of north latitude, is its heat; the whole summer being oppressively hot, the thermometer in the months of July and August standing on an average at 86° in the day; and not much lower in the night. Nor is there often much actual cold in the winter; for the thermometer seldom sinks below 50°, between the months of November and May, but commonly ranges between that degree and 65° or 70°. Nevertheless "the vicissitudes of heat," Dr. Irvine observes, "are very great; and I have often seen an alteration of 20° in the temperature within twenty-four hours: of consequence local inflammations are common during the winter season, and phthisis pulmonalis is frequently fatal." (p. 2.) The comparative healthiness of the seasons on the shores of the Mediterranean still continues the same as in the times of Hippocrates, Celsus, and Galen. "The unhealthy season in Sicily occurs during the summer and autumn: by far the greatest number of deaths happen in these periods; the other seasons of the year are comparatively free from disease."* (p. 7.) The heat itself appears to give rise to

* The reader will recollect the statement given by Celsus from Hippocrates: "Saluberrimum ver est; proxime deinde ab hoc, hiems; periculosior æstas; autumnus longe periculosissimus." (Lib. II. cap. 1.) This maxim, that the summer and autumn were the most sickly seasons, is not only verified, Sir

much disease; but its combination with moisture is considerably more pernicious. From the beginning of May to the end of August little or no rain falls: in September the rains begin. "In June and July fevers are frequent, and have much of the inflammatory type. In August and September they are still more common, and begin to be accompanied with more debility: from that time dysenteries increase in number; but after the end of October few new cases comparatively occur."—"Light rains in autumn," the author observes, "are commonly observed to be unhealthy, and nothing is so serviceable for the prevention of disease as heavy rains, occurring about the middle of September, so as to extinguish the heat of the soil, and put an end to the formation of miasmata." The effect of rains, falling early in the autumn, while the ground is still hot, in exciting miasmata and disease, is well known to the inhabitants. "I remember a muleteer," Dr. Irvine says, "passing over the hills near Ibesso, in the middle of August, during a heavy rain, who remarked, that these rains falling on the heated ground would cause a great stink (puzza,) and that many would be poisoned." (p. 6.)

Sicily is a very mountainous country; and the chief sources of the "malaria," or bad air, are the water courses between the hills, which are dry in the summer. "Many of these are extremely unhealthy in the latter part of summer and in autumn." The north wind is cold in Sicily; but the qualities of the *sirocco*, or south-east wind, which is hot and damp, have been greatly exaggerated. Dr. Irvine never observed any influence exerted by it on diseases. On the whole, he is of opinion, "that to those who can and are disposed to take proper precautions for avoiding the warmth of the mid day in summer, and the chillness and damps of winter, and the frequent and enormous vicissitudes

J. Pringle remarks, in the warmer climates, but also in camps, where men are much exposed to heat and moisture, (and, it should be added, to animal and vegetable effluvia) the great causes of putrid and contagious diseases. (On Dis. of the Army, P. II. chap. 1.) The absolute reverse of this is now true, in our own climate, since the draining of land, and the cleanliness, good pavement, ventilation, &c. in towns have been generally attended to. (See Heberden on the Increase and Decrease of Diseases.—Ann. Med. Register, Vol. I. for 1808.)

of the temperature, Sicily will prove a healthy residence. To avoid the heats, it is only necessary to keep within doors; but to avoid the cold and vicissitudes, well finished houses, and the occasional aid of stoves, are requisite." (p. 7.)

In chapter second, Dr. Irvine briefly states, that the continued fevers of Sicily vary in their symptoms with the variations of the seasons; and that, therefore, although he considers them as essentially of the same nature, he will describe them under the three denominations of summer, autumnal, and winter fevers. The first assume a very inflammatory type, run often a short course, but not unfrequently the contrary, and bear plentiful evacuations with advantage. The second are more seldom rapid in their course, are speedily marked by great debility, which is not so certainly cured by general evacuations, and which is frequently accompanied with universal yellowness of the skin. In the cool weather, that is, from November to May, fevers are less common, are more protracted in their duration, and are accompanied with less sudden and violent depression of the powers of life; in a word, "they very much resemble the synochus of England." These three forms of fever are the subjects of the three succeeding chapters, which occupy about half the volume.

The *summer fevers*, described in chapter third, although occurring at all times during the hot months, made their attacks especially after exposure to heat and exercise in the sun, sometimes suddenly, sometimes after previous indisposition. Soldiers on duty, as centinels, have been so powerfully and rapidly affected, as first to drop their arms, and immediately afterwards to fall down themselves: and a man, sitting in the sun in perfect health, has been seized in a few minutes with vomiting, and exhibited every symptom of fever. The ordinary symptoms of acute synocha characterised the attack.

"The head always ached, frequently violently; the eyes were often suffused as early as the second or third day; the countenance was red; and the arteries of the head beat strongly. Before the eyes became red, and in cases where that symptom did not occur, they appeared watery and preternaturally clear. In some cases delirium came on very early. The bowels were costive, but not in general difficult to move. Sleep and appetite

were gone. The disease had, not unfrequently, no tendency to a rapid crisis. I lost one patient on the 34th day, and many lingered to the 14th, 18th, and 20th. Occasionally, however, things ran a different course, and a fatal termination occurred on the 3d, 4th, or 5th day from the attack. One circumstance is rather surprising, that in some of the protracted cases, though by no means in all of them, the symptoms continued the whole time extremely violent, and no sinking could be remarked till a day or two before death." p. 12.

We think the following observations sufficiently important to warrant us in transcribing them at length, without any apology. It cannot have escaped the notice of practitioners, conversant with the appearances of continued fever, how often the occurrence of one untoward symptom, which might elude the observance of a common eye, will imply the presence of some morbid action of importance, at a time when the general symptoms are favourable: this will be various, according to the nature of the organ in which the morbid action takes place; and is well exemplified, in regard to the head, in the following paragraph.

"In other instances," says Dr. Irvine, continuing the observations just quoted, "the urgency of the disorder seemed by degrees to abate. The patient lay in bed weak and helpless. Often the greater part of the phenomena of the disease were of a favourable omen. One man whom I visited might be said to be right in every respect. His pulse, skin, and bowels, were natural. He ate heartily, and asserted that he was well. But there might be remarked a rapidity of speech, something odd in his manner, which in fevers of this country is a most fatal symptom. He became comatose the same evening, and died the next morning. Numerous instances of an analogous nature, though with some varieties in particular circumstances, have occurred to my observation. In fact, in many cases, but by no means in all, there might be distinguished, with more or less exactness, *three stages* of the disease. The first was the stage of fever, which lasted for an indefinite number of days, and gradually verged into the second, or stage of interval or remission, in which the patient often thought himself, and sometimes appeared to others, free from danger, if not from disease. This stage lasted also for an uncertain time, yet not in general for

more than a few days; I have, however, seen it continue for a much longer period. During its existence, it was never difficult for an experienced practitioner to detect some circumstance incompatible with health, above all, in the look of the eye, the management of the voice, or the appearance of the tongue. The third stage may be called the stage of coma. It came on very suddenly, and quickly terminated in death. I have never known, or heard of an instance of recovery from even the incipient symptoms of this stage. So remarkable were these three stages, though not always referred to their true causes, that patients were often considered as dying of apoplexy, who in reality fell victims to fevers. The intermediate occurrence of what I have called the interval, drew off the attention from the connection between the early fever and the concluding coma, which must also be allowed in its symptoms to bear a perfect analogy to complete apoplexy.

"There were many cases, by far the majority indeed, in which the stage of interval did not appear: in place of it there was sometimes only an apparent amelioration of the disease. The patient seemed in a mending way; to be wearing out of the fever, as it is said, and to be free from any considerable danger. But all of a sudden, without any obvious cause, he became worse, and speedily fell into a coma, that in a few hours terminated in death." p. 13. *et seq.*

After stating, that the stage of interval was, in a very few instances, not followed by that of coma; but, instead of lasting for some days only, it was protracted for several weeks, and at last terminated favourably; the author says,—

"It is worthy of remark, that an affection apparently, as I hope to show, of the head, may have the power of inducing a long train of lingering, and almost chronic symptoms, without the presence of any very violent action; and it may perhaps deserve inquiry, how far these nervous and protracted fevers of our own country may not owe their duration and their obstinacy to something similar." p. 15.

Dr. Irvine admits, however, that the early appearances of the fevers of Britain just mentioned, have little resemblance to those of the summer fevers of Sicily; which last, he observes, resist the ordinary degree of treatment in our island, in a sur-

prising degree. But although this may be true, we are disposed to believe, that the principle is applicable, to a proportionate extent, to many of the fevers of this country, which, under the supposition of nervous debility, have been erroneously treated upon the tonic and stimulant plan. This plan, Dr. Irvine is satisfied, is wholly inapplicable to the Sicilian fevers, however gently and judiciously conducted, or however its effects may be counteracted by the affusion of Currie, or the purgation of Hamilton.

Dr. Irvine affirms, that, in the cure of these fevers, cinchona amply administered was of no sort of use in any stage; that wine and opium were at all times and stages pernicious; that antimonials, although their operation was not unfavourable, were productive of no positive benefit; and saline medicines had likewise very little effect. The use of purgatives he considers as decidedly beneficial, and the more frequently and effectually they were given, the more relief they afforded. They neither stopped the fever, however, nor cured it; but they relieved, in a small degree, every bad symptom, and are deemed by the author indispensable to the proper treatment of fever. The two remedies which evinced the only decided powers in cutting short these fevers, were *blood-letting*, especially from the head, and the *cold affusion;* in aid of which purgatives and blisters were serviceable. At first, Dr. Irvine attempted, according to the usual plan, to lead these fevers to a favourable crisis, but he soon found his inability to accomplish this purpose; which, together with the occurrence of two instances of fatal coma, led him to attend to the early affection of the brain, and to attempt to prevent its progress. "The disease certainly was not hydrocephalus, yet there was not wanting an analogy with that disorder in some instances." He, therefore, began the treatment, when the disease was not more advanced than the seventh day, by taking eight or more ounces of blood from the temporal artery, blistering the head, giving a dose of sulphate of magnesia, and applying the cold affusion. The bleeding never failed to relieve the headache and delirium, and the cold affusion always gave relief to the symptoms, and to the feelings of the patient. The bleeding and blistering were repeated according to the continuance or violence of the disease, and according to

the effect produced, and he never desisted while any symptom of determination to the head was visible. After this relief, the cold affusion, which had hitherto given only transient relief, now appeared to have recovered its power. "Its application was generally followed by a regular improvement in the pulse, and diminution of the heat of the skin, and it was seldom necessary to have recourse to it many times before the fever was wholly extinguished." (p. 25.) With respect to the use of cold affusion, Dr. Irvine justly states, that "no specific number of repetitions can be prescribed: *the body is, if possible, to be kept cool.* Sometimes one or two affusions in the day will suffice for that purpose: sometimes twenty will hardly be enough." (p. 30.)

The tediousness of convalescence was very remarkable, especially in those persons whose fever had not been interrupted in its course, by the treatment just mentioned. Sometimes several months elapsed before even a moderate degree of strength was restored.

The appearances on dissection, in those who died, were somewhat various, but generally confirmed the opinion of the chief seat of disease being in the head.

"In some cases nothing very remarkable could be, or was discovered in the brain or its membranes. In others the cerebral veins were turgid with blood. In many there was a red spot on the dura mater, about the middle of the longitudinal sinus, of the size of a dollar. Sometimes a little pus, or rather inflammatory exudation, appeared about this spot. Occasionally the convolutions of the brain were lined with a gelatinous matter, which probably consisted of serum included in cells of a fine membrane resembling the pia mater. In all these cases we have good ground to infer the existence of excessive action at one period of the disease, and in some we can even discern the cause of the comatose state."

None of these fevers appeared to the author to be contagious, nor could he ever observe any thing like the tendency to change on certain days, described by Hippocrates. The practice of that ancient physician, however, which consisted of bleeding from the arm, shaving the head and applying cold to it, and administering glysters, approaches nearly to what the best inquiries of

our own time have brought us to adopt. Had he followed the hint, which he often observed, that a bleeding from the nose and ears, in fevers, often preceded a solution, and had he overcome that aversion for purgatives, which the drastic and unmanageable nature of his active cathartics probably inspired, he would doubtless have been more successful.

Sometime about September, the author observes, in beginning his *fourth* chapter, the fevers of Sicily begin to assume a lower type; they are attended with rather more shivering; the headache is less violent; the face less flushed; and the tongue yellower. The pulse does not continue strong for so long a period; and symptoms of debility come on earlier. A great many of those who are most violently affected, become excessively yellow, without any alleviation of their disorder: the stomach is more irritable, than in the summer fevers, and a sort of diarrhœa is often present. The vomiting is bilious, and of a dark-green color; but never black, as far as the author observed. Sometimes the liver is tender, but not frequently, nor considerably so. These fevers occasionally run out to a great length, without often showing any thing like the *interval* mentioned in the preceding chapter; but the patients sometimes die suddenly with apoplectic symptoms. Dr. Irvine thinks they differ from the former class of fevers, most particularly in the more rapid appearance of debility: but he affirms, that when the patient is seen early enough, there has always been headache, flushing of the face, redness, at least wateriness, of the eyes, and beating of the carotids; symptoms, all indicating a determination to the head. (p. 45.) It cannot be doubted, however, we apprehend, that the biliary system is also considerably deranged in these fevers. Nevertheless, as yellowness is not a constant symptom, (Hippocrates thought it a good symptom after the seventh day), and as Dr Irvine says, "it does not appear that fevers without yellowness are at all safer than those with it," or, of course, more deleterious, we may conclude with him, that this symptom is not connected with the essential or dangerous part of the disorder.

"Whether the earlier debility," he observes, "arises from the more violent action on the brain," (Is there any evidence of the occurrence of more violent action?) "or from some other

cause, I will not presume to determine: but I can safely state, that the same sort of treatment which I have used in the summer fevers, also proved successful in these. The effect of remedies was not exactly the same in the two. General bleeding was not so useful, and much less frequently extinguished the disease, in the autumn. The necessity of purging was much greater. I have also remarked, that the topical treatment of the head sometimes extinguished danger, when, from being used after the fever had been established for some days, it could not extinguish the disorder. Under the evacuating system, boldly pursued and well directed, I have often seen the symptoms of debility diminish and vanish; and never yet have I witnessed any bad effect from it. To this moment, indeed, I have lost no patient in fever treated upon the topical plan as early as the third day, or even the fourth." p. 45.

Dr. Irvine speaks of a remarkable swelling of the parotid glands, which, in spite of all treatment, goes on to suppuration; and so far from being of a critical nature, as it was esteemed by ancient authors, it terminated fatally in *all the cases* witnessed by the author. (p. 44.) " In the *two* most remarkable cases of this sort," (p. 46) the patients were apparently in a convalescent state, when these fatal tumors began to appear, and the fever recurred with more than its original violence. One of these patients, who was treated first with leeches, cold applications, and purges, then with poultices and fomentations, and afterwards with bark, wine, and opium, died comatose. The other, treated by section of the temporal artery, and other evacuations, topical and general, also died, but not comatose. The brain, after death, was found fuller of venous blood than natural.

Dr. Irvine is perhaps not quite consistent with himself in one point. After having informed us, in the outset, that these fevers are constantly multiplied by the circumstances which give rise to miasmata, and that the connection of stinking effluvia with fatal fevers is notorious among the people, he now says, (p. 48.)

" As to the connection of this sort of fever with marsh miasmata, I am at a loss what to say. It is by many considered as a remitting fever. I do not pretend to decide the point: I am more disposed to regard heat and miasmata as frequently concurring

in different relative degrees of force to produce fevers. It is certain, at any rate, that the Sicilian autumnal fevers were cured without bark; and that in very many instances, by far the greater number, no appearance of any intermission or remission was visible."

He is of opinion, however, that these fevers are not infectious; although he is not so decided on this point in regard to the autumnal, as to the summer epidemic.

When these fevers become fairly formed, and therefore run their course, he says, they do not seem to be much influenced by any method of treatment: but he thinks that calomel and James's powder were of some use, probably by occasioning gentle and continued purging. We could have wished that the author had given us some account of the alvine excretions, in these autumnal fevers; as we are persuaded that the variations of the fæces afford the most important indications, as to the administration of purgatives, on the one hand, and to the time when the use of the bark or other tonic may be advantageously commenced, on the other; especially in those fevers, which are accompanied with yellowness of the skin, and other obvious proofs of the disordered state of the hepatic system. But on this subject the author is silent. He states, in rather vague terms, that "touching the mouth with mercury is sometimes useful in cases where the yellowness is great; but it is prejudicial early in the disorder." He is not satisfied that bark, wine, and opium, which were commonly administered in the protracted stages of the disease, were ever of much benefit; but he admits, that in this opinion he may be somewhat influenced by prejudice; and, from having accustomed himself to regard the early arresting of the course of fevers as the great object of medical practice in these diseases, he may have attended too little to the more uncertain benefits of other modes of treatment in the after stages. That the early application of active remedies is the most effectual mode of subduing fever, every practitioner will allow; but we think that experience will by no means sanction that sweeping inference which our author is disposed to take up, that subsequent treatment will not materially alter both the duration and the degree of severity of fevers. In the fevers of this country, it most assuredly will: and it is perhaps sufficient to mention the fact, of

which we have witnessed numerous instances, that a total change of symptoms, from delirium, with frequent small pulse, ferrety eyes, black tongue, great postration of strength, &c. to perfect self-collection, and an amendment of all the other circumstances, has been produced at once by removing the patient from a filthy and ill-ventilated apartment, to the airy and cleanly ward of an hospital; and a speedy recovery has ensued, which could not have been expected, had this amelioration of the condition of the patient not been thus produced. We believe, indeed, with our author, that when, by proper evacuations, the local affection of the head or of the abdominal organs has been removed, very little bark or other medicine is required, in general, to restore the constitution to its wonted vigour.

Dr. Irvine concludes this chapter with a well detailed case, treated by his friend Dr. Farrell, illustrative of the benefits of the active evacutions in the commencement of these fevers. In the ensuing chapter, in which the treats of the *winter fevers*, he merely states, that they generally run a mild course, very analogous to that of the ordinary cases of synochus in England, although they sometimes assume a malignant type, and imitate the fevers of summer and autumn; and that they hardly ever fail to yield to the four grand means of cure, topical bleeding, blistering, cold affusion, and purging; and require less activity of treatment, than the other fevers. He observes, that, on the one hand, the cold affusion is not permanently beneficial, until the morbid action in the head is removed by evacuations; and, on the other, that when this topical affection is removed, the fever, though always mitigated, does not necessarily subside, but requires the cold affusion, in many instances, for entirely extinguishing its force. And thus he thinks an obstruction to the successful employment of the cold affusion, of which Dr. Currie was not aware, is easily done away.

With respect to the section of the temporal artery, which has been deemed a dangerous operation by some practitioners, Dr. Irvine makes the following remarks.

"I have, I am sure, ordered the section of the temporal artery to be performed at least three hundred times, and I never saw any accident, however slight, occur but once, and that was merely the loss of a very few ounces of blood during

the night, by which the patient was much benefited. This arose from the artery not being cut across after the operation, which effectually prevents any danger. The artery may be opened either with the lancet or scalpel, but the latter is best. By judiciously selecting the part to be cut, it may be opened several times on each side without any inconvenience: and the cases are very few indeed, so few as to be unworthy of consideration, in which a great deal of blood may not be obtained by a dexterous operator from some part of the head." (p. 63.)

In the sixth chapter, the author briefly, and with becoming caution as to the use of hypothesis and analogical inferences in scientific inquiries, suggests the probable advantages of this practice in other climates. In the propriety of this suggestion we acquiesce to a considerable extent; since every day's experience has tended to confirm the notion, that many of our own fevers, which are characterized by a typhoid disposition, but in which the functions of the sensorium are disturbed or other obvious marks of congestion or disordered vascular action in the encephalon occur, are allowed to pass into the typhoid type from an omission to remove that morbid condition of the head, by local evacuants, in the outset. Indeed, although there may be a multitude of routinists, who continue to apply wine and bark as soon as they hear the word "fever," we are sure that no thinking and observing physician now employs those medicines in the early stages of *any fever*, in this country: and we are equally persuaded, from observation, that, if the prejudices of education, and the shackles of hypothesis in regard to the nature of debility, were cast away, the same medicines would be shunned, even in the late stages of typhoid fevers, wherever delirium and restlessness, accompanied with flushed countenance, and suffused and ferrety eyes, occurred. Nevertheless, that there are fevers, which may be strictly termed *gastric* fevers, in which the head suffers only by sympathy with the stomach and hepatic system, and which are to be cured by remedies operating upon these organs only and directly, we think observation will also evince, at least in this country. It is in these, perhaps, more particularly, that the necessity of full and repeated purging is evinced by the striking benefits which result from it, as depicted by Dr. Hamilton. Dr. Irvine strong-

ly, and we are disposed to believe, very justly, recommends the consideration of this plan of topical evacuation to his brethren within the tropics, with a view to the early suppression of the yellow fever.

Intermitting and remitting fevers form the subject of chapter seventh, and are discussed with brevity, but elicit some interesting practical remarks. Intermittents are very common in Sicily in the autumn, and seldom fatal. The cinchona appeared to be the most effectual remedy; but arsenic and the sulphate of zinc were also powerful agents; and little or no previous evacuation was required. If the pulse was strong, the face flushed, and more headache than usual occurred, with a sense of heat in the stomach, the sulphate of zinc, given in doses of a grain and a half every two hours during the intermission, was more successful than the bark. "It seemed to remove the inflammatory diathesis, and often cured the fever alone." In all cases it rendered less bark necessary. Dr. Irvine found few fevers that resisted the action of arsenic for more than three days, and never saw any ill effect from it. He remarks, however, that there is a great deal of idiosyncrasy in these diseases. One man will be cured sooner by bark, another by arsenic, and a third by sulphate of zinc: whence the author seldom continued the use of any one of these more than two days, unless obvious advantage was derived from it.

With respect to remittent fevers, they are much less manageable by medicine. In some cases, which occur in the summer, bleeding suddenly converts them into intermittents; but the autumnal remittents will not bear this treatment, unless very early used; the symptoms of debility soon ensue. "The most beneficial practice in such a state," the author observes, "has, according to my experience, consisted in active purging, which is of the greatest benefit. Cinchona is of little service, unless in pretty clear remissions. Wine in the latter stages cannot be refrained from." p. 78.

The eighth chapter, which relates to dysentery, contains a good account of that disease; but little novelty in respect to the treatment. On the whole Dr. Irvine does not seem to have been sufficiently aware of the value of opiates, *combined* with purgative medicines; although the case of Champion, which he re-

lates, and which resisted the free use of the latter for a long time, and yielded only when opium was likewise administered, affords a striking example of the fact. (p. 88.) He justly remarks that scybala are by no means constantly or even frequently discharged in dysentery, and therefore cannot be deemed the cause of the disease. He recommends oil of turpentine, applied to the abdomen on flannel, as a rubefacient, for the purpose of removing the pain and tenderness of the abdomen; and anodyne glysters, with a drachm and a half of tincture of opium, and four ounces of starch mucilage, which may be repeated three times a-day, as affording much relief to the bowels.

Phthisis is very common and very fatal in Sicily, where it is generally believed, but apparently without any foundation, to be contagious. Nevertheless the author affirms, that if the phthisical "patient is careful to guard against the heat of the summer, by remaining within doors in the middle of the day, and to provide against the chilliness of the colder season, by preparing a house for his own accommodation, not forgetting a fire-place or stove, he will find the Sicilian climate, if not the best in the world, at least greatly more congenial to his frame than the fogs and rains of England, the effects of which no care can entirely prevent." p. 99.

In chapters tenth and eleventh we have some brief observations relative to *hepatitis* and *rheumatism*. The chronic hepatitis is more common than the acute. A morbid state of body, connected with hepatic derangement, in which the patient is sallow, weakly, loses his appetite, has a foul tongue, and is costive, and sometimes slightly feverish in the evening, occurs in the end of summer, and is speedily relieved by daily and smart purging, by means of which an immense quantity of bile is carried off. The sulphate of zinc is sometimes combined with the cathartics with advantage in this complaint. Rheumatism is one of the most common diseases in Sicily, and nearly as obstinate as in this country. The chronic disease yielded most readily to mercury, which was introduced into the system by friction; and bark was found of little service, except where there was great debility and emaciation from other causes.

The warm bath was in general "of wonderfully little use" in this form of rheumatism.

The work is concluded by some observations on the medical use of *borax*, and on *erysipelas*, which compose the twelfth chapter. A solution of borax, in the proportion of half a grain to an ounce of water, is considered by the author as a most effectual remedy for the ulceration, which takes place behind the ears of children, and which solutions of lead do not cure. We should be disposed, however, to doubt the permanency of such a cure; since the disease has generally appeared to us to be in some measure constitutional, and to yield readily to small doses of mercurials, acting gently upon the bowels daily, independently of any particular local application. Dr. Irvine found, that this boracic solution was altogether useless, when applied to the inflammation of the pudenda in children, which he had conceived to be an analogous complaint, and which yields readily to a weak solution of acetate of lead.

The purport of the author's observations on erysipelas is to defend the practice of applying refrigerant lotions to the skin in that disease, especially weak solutions of lead. This practice is also commended by other writers*; and, for our own parts, we have been in the constant habit of employing cooling lotions, such as equal parts of aq. ammoniæ acetatæ and water, &c. in erysipelatous inflammation, with great benefit, and with immediate relief to the feelings of the patient, which the application of farinaceous powders most commonly aggravated, or failed to relieve: but very able surgeons deprecate the indiscriminate use of them†. Dr. Irvine has not found the saturnine solutions of any advantage "in the *zone*, which surrounds the waist, and is accompanied with a pustular eruption." The term *vesicular* eruption would have been more correct; for such it invariably is in the first days of the disease: and as to shortening its course, we believe it were as easy to abbreviate the duration of the small-pox: it will only terminate at its usual period‡. It is properly a *herpes*, and not an erysipelas.

* See Cooper's Dictionary of Practical Surgery, and also his First Lines of the Practice of Surgery.

† See Pearson's Principles of Surgery. Chap. x. Sect. 4.

‡ See Edin. Med. and Surg. Journal, for April, 1811, p. 239.

On the whole, this little volume is entitled to a considerable share of praise. It is obviously the work of a man of independent mind, who views disease with a clear and unwarped understanding, nullius addictus jurare in verba magistri. The disposition to generalize too readily from a few striking cases, is a fault into which all men are more or less liable to fall, and which we cannot but suspect that our author has not always avoided. But we think that the general principles, upon which he commonly proceeds, are such as all men of unbiassed observation are every day concurring to adopt, and that they cannot be too often or too strongly urged upon the attention of the profession at large; among many of whom it is painful to observe the rooted abhorrence of gratifying the calls of nature and instinctive sensation, the constant fears of repulsion and metastasis, of obstructing excretions and interrupting discharges, which have no better foundation than ancient hypothesis, which they would now blush to defend.

Observations on the Hydrargyria, or that Vesicular Disease arising from the exhibition of Mercury. By George Alley, M. D. M. R. I. A. Fellow of the Royal College of Physicians of Edinburgh. 4to. pp. 103. London, 1810.

[From the Edinburgh Medical and Surgical Journal, for January, 1812.]

We have to apologize to our readers, for suffering a work of so much accuracy and learning, as the essay before us, to pass so long unnoticed. Since the period of its publication, the author has been farther occupied in investigating the operation of mercury in various diseases, and has already announced the publication of a volume on the subject. We hope, therefore, to be able to make the *amende honorable*, by a more early notice of his forthcoming treatise.

The disease, to which Dr. Alley has assigned the appellation of *hydrargyria*, has been for many years noticed by several faithful observers. Mr. John Pearson, in London, has been in the practice of describing its symptoms from the year 1783, in

his lectures on surgery.* It was known a considerable time ago to the physicians of the Royal Infirmary at Edinburgh, where we recollect to have seen an instance of it in the year 1798. But with the exception of a brief notice of the complaint in Mr. Benjamin Bell's "Treatise on Gonorrhœa," &c.† no distinct account of it was published from the press, until Dr. Alley produced a small tract, expressly upon this topic, in the year 1804, then denominating it the "*Mercurial Disease.*" This tract was soon followed by other publications upon the same subject; especially by an essay of his countryman, Dr. Moriarty, who called it the "*Mercurial Lepra:*" and the first paper in the first volume of this journal, exhibited a detail of three cases of the disease, given by Dr. Spens, under the title of "*Erythema Mercuriale.*" This term was adopted by Dr. M'Mullin, in his inaugural dissertation, the substance of which was given in the fourth number of our Journal (for January 1806.) And lastly, a very accurate description of the disease was given by Mr. Pearson, in the second edition of the judicious work just quoted, under the appellation of "*Eczema Mercuriale.*" Such is the literary history of this disease, which our author has pointed out in his preface.

In regard to the nomenclature of the disease, Dr. Alley observes, that "to such a (vesicular and acute) complaint, the term 'erythema' or 'lepra' must be wholly inapplicable; the former being never a vesicular disease, while the latter is always a chronic affection." (Pref. xi.) This is the truth, but not the whole truth; for neither is lepra ever vesicular, but on the contrary consists of orbicular, dry, scaly patches from the beginning. His objections to the term "eczema," used by Mr. Pearson, and to be used by Dr. Willan, do not appear to us to be very strong: they are founded upon the uncertainty of the exact sense in which that word was originally employed. But upon the same grounds we might object to the adoption of the terms lepra, psora, psoriasis, lichen, and many others, which have been applied by different writers among the ancients to different forms of disease, with some want of discrimination. If, in adopt-

* See Obs. on the effects of various articles of the Mat. Med. in the cure of Lues Venerea, 2d Edit. p. 167.

† Vol. II. p. 227.

ing any of these, as generic terms, we approximate to the general acceptation in which they were anciently employed, and at the same time define the exact sense in which we appropriate them, no confusion can arise; but, on the contrary, the adoption of them will rather assist the comprehension of the reader, in acquiring a knowledge of the diseases intended to be designated by them. Now although the terms ἰδρὼτα and ἐκζεμα, as well as the corresponding Latin terms "*sudamina*, and *papulæ sudoris*," have doubtless been applied to the *miliary vesicles* connected with sweating in fevers, and to other eruptions of a similar kind, originating from the irritation of the heat of the sun, acrid applications, and other causes, as well as sometimes perhaps to mere *papular* eruptions; yet it seems obvious, that an extensive efflorescence or ebullition, as it were, of inflammatory points, set thick over the body, has been generally understood by these terms, both among the ancient and modern writers in those two languages: and as, on the one hand, the word *miliaria*, has been appropriated to the sudamina, arising in the sweating stage of fevers; and, on the other, the *papulous* eruptions have been designated by the term *lichen* in Dr. Willan's arrangement; so the appropriation of the term *eczema** to the profuse eruption of minute vesicles, originating from irritants, and not the result of previous fever, according to Dr. Willan's method, seems to be convenient and advantageous. It is convenient, because it expresses to the learned something of the nature of the eruption; and it is advantageous, in a systematic view, because it comprehends several varieties of the same sort of eruption, resulting from different exciting causes.

Dr. Alley divides the disease in question into three species, or rather varieties, according to the degree of mildness or severity of the symptoms, denominating them hydrargyria *mitis*, H. *simplex febrilis*, and H. *maligna*, respectively. The first

* The term is from ἐκζεω *effervesco*. Aetius thus describes the eruption: "Fiunt in toto corpore pustulæ, dolorem cientes, citra saniei collectionem. Eas eczemata, ab ebulliente fervore, Græci vulgo appellant" Tetrab. IV. Serm. I. Cap. 133. As a specimen of the modern acceptation, we may state the following definition from Sauvages. "Exanthemata illa dorsum, pectus, brachia, crura sæpius afficiunt, numerosissime consita, rubra, pungentia, acriter dolentia." Nosol. Meth.

species, he says, "has, at a first view, nothing to characterize it further than the light rose-coloured efflorescence already mentioned. An attentive observer, however, by holding the affected parts between him and the light, and keeping his eye on a level with them, may perceive the surface to be studded over with innumerable, minute, and transparent vesicles: but to the naked eye the vesicular appearance is sometimes with difficulty perceptible. As the eruption strikes out, the surface is affected with a prickling heat and itching; and in some cases, for a few hours, there is slight headache and nausea." It generally appears first about the upper and inner parts of the thighs, the scrotum, groins, and lower part of the belly; sometimes it extends no farther, but at others it spreads over the whole body, the vesicles being so close and numerous, as to present one uniform suffusion. The red colour recedes on the application of pressure, and returns when that is removed. Dr. Alley observes, in a note, that "the colour of the skin has, in some cases, been so little changed, that no eruption seemed to precede desquamation. In such cases, however," he adds, "there was much itching of the skin, and the surface was rough before the cuticle had begun to exfoliate." (p. 24.) But we have little doubt, that, had the cuticle been examined through a convex lens, this roughness would have been found to consist of vesicles. This species, the author states, soon degenerates into the second, and even into the third, if the use of mercury be incautiously continued after the appearance of the eruption. This, however, is not always the case, according to the observation of Mr. Pearson.

The second variety "is preceded by languor, restlessness, and rigors; is accompained with much heat and itching of the skin, and is considerably more rough to the touch than the efflorescence in the former species." (p. 26.) Before the spots are crowded together, the eruption somewhat resembles the measles; but they are larger, Dr. Alley says, and do not afterwards appear in the annular form, pointed out by Dr. Willan as one of the characteristics of rubeola. By the aid of a magnifier, we believe, the vesicular appearance may be always detected, even in the early stages. Mr. Pearson justly remarks, that, "the vesicles, which contain a pellucid fluid, are, at their first appearance, so

small, that they cannot be easily distinguished from papulæ without the aid of a convex glass; they are then seen to be distinct, each vesicle being surrounded by a circle of redness; and, if they are not ruptured at an early period, they acquire the size of a large pin's head, at which time their contents are opaque and puriform." (loc. cit.) There are, in this second species, symptoms of fever; such as headache, nausea, whiteness of the tongue, thirst, heat of skin, and accelerated pulse, together with an oppression about the præcordia. Desquamation commonly begins about the fourth day, but sometimes later, leaving the skin underneath red, and disposed to throw off successive crops, which diminish in severity until the cuticle remains whole.

The third variety, *Hydrargyria maligna*, begins like the preceding, but its distressing termination may be anticipated from the following symptoms: "1. The sense of burning on the surface is experienced to a very painful degree. 2. The actual heat of the skin becomes intense. 3. The soreness of the throat and fauces is extreme. 4. The colour of the eruption is darker, rising sometimes even to purple; and there is considerable tumefaction of the surface. 5. Vesicles of a larger size than in the former species precede desquamation." (p. 29.) The vesicles are so numerous, that the whole of the cuticle desquamates from the surface of the body; and, where the larger ones are ruptured, they pour out a very acrimonious discharge. As the disease advances, the exudation from the surface becomes more acrid and viscid, and acquires a most offensive odour.

"During the entire course of the disease, there is very great anxiety and depression of spirits. Sleep is almost wholly banished; and opiates procure, at best, but very short intervals of repose. The misery of the patient, under these circumstances, can scarcely be conceived. To his mental sufferings, which form no inconsiderable share of his agony, is superadded the most exquisite bodily torture: for the surface is either left raw and unprotected, or the cuticle, hardened by the exudation which serves to give it partial adhesions, aggravates his torments. The pain which motion produces was aptly expressed by a patient of Dr. Spens: 'he felt,' he said, 'as if his flesh was cracking in pieces." (p. 36.)

In truth, no object can be more distressing to look upon,

than a patient in this condition, when, from the rawness and tenderness of the whole surface, every point of contact with the bed on which he lies irritates like the pricking of needles. The desquamation does not take place so early, in this malignant variety, as in the former, not commencing in some cases until eight or ten days after the appearance of the eruption.

Dr. Alley gives the following table of the results of all the cases that he had witnessed during the last ten years:

	Hyd. mitis.	H. simplex febrilis.	H. maligna	Total.	Cured.	Died.
Male	6	12	10	28	22	6
Female	4	7	4	15	13	2
Total	10	19	14	43	35	8

The exciting cause is clearly the irritation of mercury, and that, in Mr. Pearson's opinion, independent of the action of cold, or of the quantity of mercury employed. A peculiar idiosyncrasy, that is to say, some unknown state of constitution of the persons thus affected, is the only explanation which is attempted to be offered for its occurrence.

Dr. Alley has taken considerable pains in collecting and detailing analogies, in the effects often produced upon the skin by the influence of other irritants, besides mercury, whether externally applied, or taken into the stomach; such as almonds, mushrooms, herrings, crab-fish, muscles. and lobsters; the juice of the bitter cassada, several fruits, and vegetable substances, &c. when swallowed; and cantharides, camphor, the Indian varnish, the oil of the cashew-nut, &c. from contact with the skin. Few of these, however, are probably vesicular. We have seen the distinct wheals of urticaria following the use of muscles; and erythematous or papulated eruptions occasioned by other irritants to the stomach.

In the treatment of H. mitis, the author states, that "little more is requisite than to discontinue the use of all mercurial preparations, to remove the patient from the apartment in which they have been exhibited, and to advise tepid ablution

of the body, and some gently purgative medicine." (p. 58.) In the simple febrile, and malignant species, the same plan of treatment is, during the eruptive stage, always applicable. Dr. Alley agrees with Mr. Pearson in his observation, when he says, "although the troublesome symptoms which arise, may be relieved by their proper remedies, I am doubtful whether any plan of treatment has the power of interrupting its regular course, or abridging its duration." (Loc. cit. p. 177.) Dr. Alley strongly suggests the probable utility of the cold affusion, during the primary or eruptive fever, in order to reduce the excessive morbid heat; which, though itself a consequence of the fever, becomes in its turn a cause of much irritation, the source of fresh excitement and of new disease; leading to debility, gangrene, and putrid re-absorption, which are followed by diarrhœa, defection of the mental faculties, and death. Yet it is singular, that he is either a sceptic in regard to the truth of his own suggestions, or, that they only occurred to him while writing his book; for he leaves the remedy to be *tried* by other practitioners, not having suffered one of his forty-three patients to have the benefit of it. Of *tepid bathing*, however, he has made some trial, and found it beneficial in the eruptive stage. *Purgatives* are deemed by Dr. Alley the most effectual remedies, in conjunction with immersion, for abating the excessive heat, which is the sure precursor of an aggravated disorder. The *acids*, he observes, however serviceable as antiseptics, and in relieving thirst, are seldom admissible in the secondary fever, unless combined with opium, as diarrhœa is commonly present. In the desquamatory stage, opium is necessary to relieve the incessant irritation, but of course it is to be sparingly, or not at all employed in the eruptive fever. The bark of cinchona aggravates the pectoral symptoms, Dr. Alley states, and therefore we are deterred from its exhibition, although it might be deemed appropriate during the purulent desquamation; and he considers *wine* not only as an excellent substitute, but as constituting, together with a constant supply of light nourishing diet, our chief dependence.

"As to the most proper external applications in the desquamatory stage, practitioners have varied in their opinions. Cleanliness is with some the only object; but others have, with much

justice, extended their views to the prevention of re-absorption from the surface, and to the generation of a new cuticle. In addition to frequent warm bathing or gentle tepid ablution, the application of absorbent powders will be found useful; and finely levigated carbon. zinc. simp. pp. and meal, separate, or in a combined form, may be employed with good effect for this purpose." p. 70.

The author deprecates the use of saturnine applications to so large an exposed surface.

We have thus given a meager sketch of the contents of this monograph. Dr. Alley has detailed, with minuteness, every thing that can be said on the subject, and evinced a considerable share of reading upon collateral topics. But on the whole, this dilatation has the effect of weakening the impression of the picture, and of rendering it less clear, than the terse and comprehensive view given by Mr. Pearson. Dr. Alley has added three plates, illustrative of the three forms of the complaint; and he considers them as good representations of the appearances. They may, perhaps, serve to recall the recollections of those who have already seen the eruption; but we are sure that they are very far from affording a correct notion of it. Nothing like vesicle, even in the most imperfect degree, is represented, nor perhaps could be depicted on so small a scale. The eruption seems to consist of mere brown *maculæ*, not unlike pityriasis or some of the varieties of roseola.

We cannot terminate this article without expressing our regret that Dr. Alley is no more, and that our hope of having him soon again before our tribunal is at an end. He died of typhus fever at Fermoy.

Medical Histories and Reflections. By JOHN FERRIAR, M. D. 3 Vols. 8vo. New Edition, 1810.

[From the Edinburgh Medical and Surgical Journal, for April, 1811.]

THE nature and object of this work is well known to be in imitation of Dr. Home's two valuable publications, and to consist of clinical or practical commentaries on the cases which

came under the author's care. To this new edition there are fewer additions than were expected. Since events lead to experience, and experience to improvement, we regret that Dr. Ferriar has been prevented from publishing the results of his enlarged experience of seventeen years.

Under the head *diabetes* some additional observations are given, confirming the author's former plan of treating the disease as a disease of debility. The medicines employed were a combination of Peruvian bark, uva ursi, and opium, in the proportions of a scruple of each of the former to half a grain of the latter, four times a day. The doses were taken with lime water, which was also directed for the patient's common drink. Three cases of confirmed diabetes mellitus are reported *cured* by this plan. Some tables are given to show the increase and subsequent diminution of the urine during six months; but the quantity of drink, or liquid and solid ingesta, is not stated; therefore the tables are of little or no use:—they furnish no inference but what is universally known; and they fail to show the only particular circumstance which is at present disputed, viz. the relation which the quantity of drink bears to the urine discharged. The blood and the urine of one patient were analysed by Dr. Henry; he detected *urea* in the diabetic urine, and nothing particular in the blood.

Some additions are made to the chapter on epidemic fever. We shall quote them for the benefit of our readers, and especially for those who possess the first edition of this work.

"The fever generally prevalent in Manchester, and the surrounding country, is a mild typhus. But in particular seasons, it is attended by symptoms which are not clearly indicated by practical writers, and which I think it proper to mention, because they are equally unexpected and distressing to the practitioner.

"In the second or third week of typhus, when the fever appears moderate, and the probability of recovery is strong, a sudden determination takes place to the head or breast, sometimes to the bowels, accompanied with extreme pain, and the patient is carried off in the course of a few hours. I have seen the metastasis, in the genuine typhus, and in very young subjects, as rapid as the translations in gout. If the patient survives

these attacks, the fever sometimes changes its type. In one case, where a typhus was unusually protracted, after several hazardous determinations to the stomach and bowels, the fever assumed the form of an intermittent, and the patient was recovered with great difficulty, by the use of the strongest stimulants.

"The frequency of such accidental metastasis as that I have described, in our fever-wards in 1805, and the spring of 1806, was truly alarming. Dissection threw little light on their nature, and only served to show that they depended more on changes in the nervous, than sanguiferous system.

"Towards the end of autumn, we are generally visited by remittent fevers; and I scarcely recollect a season, in which some obstinate cases of this nature have not occurred, which resisted all the usual methods of cure. A succession of melancholy events of this kind induced me to look for a more powerful tonic than bark or steel; and, from the analogy between intermittents and remittent fever, I turned my thoughts to the employment of arsenicum album, for the revival of which, as a medicine, the public are indebted to the late Dr. Fowler. I soon had occasion to employ it in some very dangerous and tedious remittents, and I found it a safe and certain remedy. It generally lessens, if it does not suspend, the second paroxysm after it is exhibited, and it affects the purpose without producing the slightest disturbance in the habit. I have generally given, to an adult, five drops of the saturated solution, every four hours, and I have seldom found it necessary to exceed this dose.

"In one case, where I ordered this remedy, the remittent had continued six weeks, in another, nearly two months, without any abatement of the symptoms, and both patients were sinking fast into the grave, when they were saved by the use of arsenic. The only sensible effects produced by it, are the removal of the crust on the tongue; the appearance of a sediment in the urine; and increased firmness of the pulse.

"Having frequently experienced the efficacy of this medicine in remittents, I was induced to try it in the last stage of typhus, when neither bark, wine, or brandy, cold-bathing, or occasional doses of Cayenne pepper, had the effect of rousing the powers of life, or of lessening the thick crust, which lay like a black marble slab on the tongue. With such cases, every man in ex-

tensive practice must have met; it has often been my lot to encounter several of them, in the course of a few weeks. I found that the arsenical solution uniformly cleared the tongue, in two or three days, and that the fever gave way rapidly afterwards. The favourable alteration, after the change of medicines, was too great to admit any doubt respecting its cause, and the number of such events, which I have witnessed, leaves no room for uncertainty. It is a singular advantage, attending the use of arsenic, in these cases, that it does not operate as a general stimulant, but merely as a sound tonic. Neither the concomitancy of cough or dyspnœa, therefore, prohibits its use in typhus. The only contra-indication is a tendency to diarrhœa, or nausea. Yet I have been able to give the solution in the dose of two or three drops for a dose, even when the bowels have been very irritable, by combining it with a small quantity of laudanum.

"As soon as the feverish paroxysms are stopped, I think it prudent to suspend the use of the arsenical solution, and to support the patient with bark, and different cordials. But I never saw any inconvenience from the use of the mineral, excepting a slight soreness of the throat and lips.

"I also make it a rule to delay the exhibition of this medicine, till it is evident that the usual remedies are not likely to succeed: in producing an agent of such powers, there ought to be a "dignus vindice nodus;" and its administration ought to be considered as a matter of solemnity, as its abuse would prove so extremely pernicious, in rash and ignorant hands.

"In the course of the last twelve months, I have met with some cases of typhus, in which there was a very distressing dyspnœa, which continued during the whole fever, without any appearance of inflammation. In general, the difficulty of breathing was continual, though aggravated during the febrile exacerbations, but in one case respiration was perfectly free, during the intervals of the paroxysms, and regularly became very difficult on the return of the hot fit.

"In these circumstances, which precluded the use of bark, I had recourse to the extract of the ratania root, lately introduced (at least, lately known by that name) from South America, and I have found it a valuable substitute for the cinchona. The intense bitter of the extract is softened to an agreeable astringency, when it is dissolved in water, (by the intervention of a

little alcohol) in the proportion of from five to ten grains to an ounce, and its effects on the patient's strength and spirits are peculiarly cheering. Its flavour, in this state, strongly resembles that of port-wine, and its operation in fever appears to me very similar.

"The extract of ratania, notwithstanding its sensible quality of astringency, does not produce costiveness; in this respect also, it frequently merits a preference to Peruvian bark.

"Since the establishment of our fever-wards, I have carried the practice of cold-bathing to a considerable extent, in the latter stage of typhus and in the commencement of scarlatina anginosa.—I shall make some observations on this subject, in the third volume."

In the second volume, we find some additional practical remarks introduced, in describing the remedies of dropsy. Dr. Ferriar's late experience has confirmed his opinions delivered in his former publications upon this subject. He has adopted a remedy with considerable advantage, which consists of several liquid diuretics combined; and though the formula appears a farrago, it seems well entitled to be more extensively employed. It is as follows:

"R. Oxymel. colchic.
——— scillæ.
Tinct. nicotianæ.
Spir. æther. nitros. āā p. æ. Misce.
Capiat cochleare parvulum, ex aquæ pauxillo, quater in die.

"When an additional stimulus is wanted, in debilitated habits, about ten drops of tinct. cantharid. are added to each dose. The usual quantity of cream of tartar is given early every morning, and the patient begins to use the diuretic drops in the forenoon. In very costive habits, it is sometimes advantageous to add a portion of syrup of buckthorn to the farrago; and I frequently join the tincture of digitalis to it, in such doses as the patient can easily bear." p. 200.

Gamboge, tincture of lytta, and extract of elaterium, are recommended as powerful diuretics. Two things have often surprized us in reading over this learned author's histories and reflections upon dropsy; first, the prodigious number of cases

in a given time; and secondly, the readiness with which they yielded to the treatment employed.

The concluding paragraph of the paper on the effects of pneumatic medicine is omitted, and the following substituted in its place:

" All hopes from this source are now completely abandoned. I had occasion some years ago, to observe to the late Dr. Currie of Liverpool, that the chemical theory of diseases was merely the humoral Pathology elevated in the form of vapour, in which he agreed with me," p. 279, but in which we do not, because no reasons are given.

At the conclusion of the second volume, a controversial appendix is with great propriety omitted, and the author's valuable essay on Digitalis is inserted, much to the credit and advantage of this second edition of his works. The merits of that essay are too well appreciated to require any commendation at this time; it deserves repeated perusal.

The third volume commences with an essay on rabies canina, with the addition of two cases by Mr. Cock, surgeon, of Ashton under Lyne, which terminated fatally. As there was no reason to suspect the existence of canine madness in the town or neighbourhood, excepting in the animal which bit these persons, Dr. Ferriar thinks " the statement affords full proof of the sporadic origin of the disease in dogs, contrary to the opinion proposed by Mr. Meynell, and inconsiderately adopted by one or two medical men. That opinion might indeed be refuted by the now established effect of fever-wards, which are capable of arresting the progress of an epidemic, by separating the sick, but which do not prevent the sporadic generation of infectious fever in individual cases." p. 60. But to this remark it may be objected, in the first place, that the laws which the contagion follows in animals are hitherto very imperfectly ascertained; and secondly, the effect of fever-wards is a comparison, but not an argument. To prove his point, Dr. Ferriar should show, that small-pox and syphilis have a sporadic origin.

The following extract from the account of fever-wards, will be read with lively interest by those who watch the improvement which has taken place within these few years in the management of infectious diseases.

"The success attending the establishment of our House of Recovery, has exceeded the warmest expectations of its supporters. But during several years, we were limited in space, and unable to receive the whole number of patients, whom it was expedient to admit. Some adjoining and neighbouring houses were therefore occasionally engaged in the same street, for the admission of patients; and thus, without any previous intention on our part, a set of experiments was made respecting the distance to which contagion will extend. In the first instance, no person suffered in the neighbouring buildings, where the street was only four yards wide, the windows of the occasional fever-ward being generally open, and the house full of patients. In another instance, a house, capable of containing twenty-five patients, not at all separated from the adjoining houses in the same row, was used for twelve months as a fever-ward, without the occurrence of any fever in the immediate neighbourhood. Thus the *experimentum crucis* has been tried, and the innocence of contagion, when properly diluted with atmospheric air, is fully established.

"So completely were the public now convinced of the utility of the plan, that a subscription, suitable to the opulence and spirit of the town, was raised; a large area was purchased, and a Fever-Hospital erected, capable of easily containing an hundred patients. The expense of the building was upwards of 5,000*l.*—Since it has been in the power of the physicians to admit every case of infectious fever, as it occurs, we have felt ourselves completely masters of the disease. Epidemic typhus is now unknown to us, while it has been raging in some of the neighbouring towns. A part of the space is appropriated for the reception of patients in scarlatina anginosa; and although this disease has been repeatedly introduced into the town, generally from Liverpool, and lately from Yorkshire, its progress among the poor has always been checked, by the removal of the patients."

The mortality of fever-patients has varied considerably in different years, as the following table will show.

Years.	THE NUMBER OF PATIENTS.				Proportion of Deaths.
	Admitted.	Cured.	Dead.	Remaining at the end of each year.	
From 1796 to 1797	371	324	40	7	1 in 9†
1797—1798	339	300	16	23	1—20-
1798—1799	398	360	27	11	1—14†
1799—1800	364	315	41	8	1— 9-
1800—1801	747	645	63	39	1—11†
1801—1802	1070	956	84	30	1—12†
1802—1803	601	539	53	9	1—11†
1803—1804	256	215	33	8	1— 7½
1804—1805	184	144	34	6	1— 5¼
1805—1806	268	235	—	4	1— 9-
Total	4588	4033	391		

Some additional cases of an affection of the lymphatic vessels are published, which prove the existence of this complaint, independent of pregnancy. The following paragraph is appended to the short chapter on Hooping-Cough.

"The beneficial effect of the limestone soil in Derbyshire has long been known to the old practitioners of this town, in the cure of hooping-cough, and I have had an opportunity of verifying it in some very striking instances. If the climate of the Peak were milder, I am persuaded that many cases of spasmodic asthma might be relieved by residence at Buxton; it is a well known fact, that broken-winded horses are free from their complaint, while they remain there. This may be attributed in some degree to the quantity of lime which the brooks hold in solution; and in some measure to the impregnation of the atmosphere, from the numerous lime-kilns in the neighbourhood."

Some other additions which we have discovered on a comparison of the former volumes with the present, consist of a few remarks on the subordinate power of nitrous acid in syphilitic cases; some observations on the venereal disease, not

very clear or convincing; and a note respecting the treatment of the Walcheren fever, in which the *liquor arsenicalis* is recommended.

Entomologie und Helminthologie des Menschlichen Koerpers, oder Beschreibung und Abbildung, der Bewohner und Feinde disselben unter der Insecten und Wuermern. Von D. Johann Heinrich Joerdens, &c. &c. 4to. Vol. I. pp. 319, 15 coloured plates, Hof. 1801. Vol. II. pp. 154, 7 coloured plates, Hof. 1802.

[From the Edinburgh Medical and Surgical Journal, for July 1812.]

No apology, we apprehend, is necessary for giving an account of books, though not recently published, provided they be new or scarcely known in this country. The copy of the publication lying before us we obtained with great difficulty, some months ago, and is, we believe, the only one in this kingdom.

Mr. Joerdens considers his subject in the most extensive point of view, as he includes, not only the insects and worms which infest the human body exclusively, but also those which are only occasionally injurious to it, and even those which contribute to its disorganization after death. Of each of the numerous species which this plan obliges him to notice, he details minutely the systematic history; gives one or more coloured figures of the insect, larva, &c.; describes accurately the injury which it does to the human body, as well as the means of remedying it; and to the whole prefixes a very copious literature. This extensive view of the subject has, no doubt, materially increased the size and expense of the work, but we do not think unnecessarily, because it has enabled him to collect together an immense mass of curious information, for which there would otherwise be no proper repository.

The first volume, besides an introduction, treats of the insects which infest the human body externally, and the second, of the intestinal insects and worms. The introduction is not very important; Mr. Joerdens puzzles himself to find out some use for these troublesome and hurtful companions; for it is evidently

quite ridiculous to suppose, that such means were necessary to induce us to take care of the cleanliness of our persons,—to warn us against improper food,—to contribute to our health by devouring the excessive mucus in the intestines,—or finally to terminate our corporeal existence after we had completed our destiny in this world.

The injury which these animals inflict on the human body, may be either mechanical, chemical, or mixed. Of the first kind are the wounds of all those which are not furnished with any particular acrid or poisonous secretion to insert into the the wound. The second class includes only cantharides, the *Coya*, the larva of the *Vinula*, and a few others. The last division, which contains those which poison the wound they inflict, is by far the most numerous. This is evident from the effects produced being totally disproportioned to the mechanical injury, frequently producing erysipelatic inflammation, vesicles, ulcers, swelling of the wounded part, with redness and pain,—or on the contrary, insensibility and numbness, accompanied by fever, paleness of the countenance, increased flow of tears, swelling of the body, trembling of the limbs, depression of the vital powers, cold sweats, fainting, spasms and convulsions.

The chemical nature of these poisons is totally unknown, but their production does not seem to depend on the irritation of the animal when inflicting the wound. On the other hand, it seems intimately connected with the temperature of the atmosphere, as many insects, which are innocent in winter, and cold climates, become dangerous in summer, and in hot climates.

Mr. Joerdens then proceeds to consider the influence which the season of the year and atmospheric temperature, the aliment and condition of the insect, and the age, sex, and constitution of the person wounded, have upon the effects of these poisons; but the ready explanation, which he has constantly coupled with his statements, makes us strongly suspect that they are derived from hypothesis rather than observation. His preface is concluded with a very general account of the remedies to be used against the bites and stings of poisonous insects.

The first subdivision treats of those insects which live only in the human body, and can propagate themselves in it alone. These are, so far as we yet know, only six in number: the

Musca lepræ, *Pulex pruriginis senilis*, *Pediculus humanus capitis*, *corporis*, and *pubis*, and the *Ascarus scabiei*. He commences his account of the first of these with the following judicious observations.

"Foul ulcers of all kinds, which are exposed to the air, and the tribes of insects inhabiting it, especially in warm weather, are common nests for certain kinds of maggots and larvæ. This was known to the ancient Greeks, as I shall have occasion particularly to mention, when speaking of flies hurtful under certain circumstances only. Galen and Ægineta were acquainted with the fact; and among the moderns, it is most fully noticed by Hauptmann, Lange, Plater, Sennert and Borelli, but especially by Steenever, who has not only supplied the exact description of these maggots, but also given representations of them in their various states. As is still the case, at that time, too general conclusions were derived from general observations, and because worms and insects were found not only in foul ulcers and wounds, but also in various cutaneous eruptions, they were considered as the causes of most diseases to the exclusion of miasmata. Even the great Linné and his contemporaries acceded to this opinion, and added to its popularity by the authority due to their spirit of investigation; and not only all eruptions, but syphilis, the plague, and many other diseases, were ascribed to worms and insects. But the diversity of insects found in different cutaneous diseases, does not entitle us to consider them as their cause, but rather as their consequence. For every insect which derives its nourishment from acrid, fermenting and putrid substances, does not therefore thrive, wherever there is fermentation or putridity, but different degrees of these are congenial to different kinds of insects. Hence, a particular insect may exclusively be nourished in particular cutaneous sores, without having the least connection with its form or malignity, just as other insects, which live on fresh and entire substances, are not indifferent in the selection of their food."

The second subdivision is allotted to those insects which do not inhabit the human body, but are remarkable, on account of the inconveniences or diseases which they occasion in it. These are again divided into three sections. The *Cimex lectularius*, *Oestrus hominis*, *Pulex irritans*, and *P. penetrans*, are included in the first as insects which commonly and especially infest the

human body. The second section contains the description of 94 species, which only injure it under certain circumstances; and the third section is devoted to those insects which appear in the human body as a very uncommon occurrence, such as insects under the skin and in the muscles, in the frontal sinus, in the eyes, in the maxillary sinus, in the nose, ears, mouth, trachea and lungs, stomach, intestines, urinary organs, mammæ and female organs of generation.

The third and last subdivision of this third volume, is the history of those insects which are nourished and propagated in the dead human body in its different stages of decay.

The second volume is more interesting to the practitioner. It contains three sections; the first treating of worms peculiar to the human body; the second, of worms only occasionally injurious to it; and the third of those accidentally found within the human body: and in an appendix, he has collected the histories of some undetermined insects and worms, of fabulous cases, and of various amphibia, and other animals said to have been found in the human body. In the introductory chapter to the section on intestinal worms, Mr. Joerdens states at great length his grounds for believing that their eggs are introduced into the fœtus with the blood of the mother, or into the infant with the milk of the nurse. From the latter supposition he draws a practical conclusion, that, in choosing a nurse, we should be particularly careful that she never has been affected with worms. He also hints, that the saliva may be the means of introducing the eggs of intestinal worms, in those countries where nurses have the abominable practice of previously chewing the food they give to infants. But besides the introduction of the eggs, a certain predisposition is necessary for their development in the intestinal canal, and which seems to be connected with a warm and moist atmosphere, and the deficiency of food, or the use of unwholesome food in times of scarcity.—In the observations on the symptoms, diagnosis, and method of cure of intestinal worms, there is nothing worth noticing, except that he nowhere mentions the oil of turpentine, lately used with so much success, as a remedy ever suggested. The intestinal worms described by Mr. Joerdens are,

1. *Tricocephalus hominis.*—This worm was discovered in

1760, by Wagler, and is rare. It is most commonly found in the cœcum of persons who have suffered from great accumulations of intestinal mucus. Nothing certain is known of symptoms peculiar to its presence, or of the means most successful in expelling it, but Mr. Joerdens recommends saline medicines, from their action in dislodging intestinal mucus.

2. *Ascaris vermicularis.*—Of the numerous accounts of these well known inhabitants of the rectum, Mr. Joerdens thinks that those of Goeze and Van Phelsum alone deserve the epithet of classical. They are easily distinguished from young lumbrici, by the vivacity of their motions when exposed to the light. The anatomy of the male is given as well as that of the female, and suppositories of bacon, to which they often adhere in heaps, are mentioned among the remedies.

3. *Ascaris lumbricoides*, is most frequently met with in the cœcum and jejunum, but occasionally finds its way into the large intestines and stomach, or creeps into the pancreatic or biliary ducts, and sometimes penetrates through the coats of the intestines into other parts of the body. They occasionally produce the most violent symptoms, or even cause death; and at others, exist in great numbers without being suspected.

4. *Ascaris stephanostoma* fronte bicorne, proboscide acuminibus duodecim obsessa, incisuris corporis quatuordecim, cauda bifida. Habitat in canale intestinali.

5. *Ascaris conosma* papillis in capite obtuso duobus, incisuris corporis decem, cauda simplice. Habitat in canale intestinali.

These two new worms were discharged by the action of calomel from a young man, under the care of Professor Bretschneider, and were examined by Professor Lenz of Jena, and preserved in his collection. They differ very much from all other intestinal worms, and have more the general appearance of larvæ. As they have considerable resemblance to each other, and occurred in the same patient, it is possible that they are the male and female.

6. *Hamularia lymphatica* corpore lineari, teretiusculo, capite obtuso, infra duobus hamulis prominentibus instructo. This filiform worm was discovered by Treutler, in a person who had died of phthisis, in the glands at the division of the trachea and bronchiæ. They were within the lymphatic vessels, adhering

strongly to them by two hooks. The vessels were much enlarged, and their valves destroyed.

Of the tape-worms, he describes only three species, the *tænia solium*, *vulgaris*, and *lata*. We shall say nothing of these at present, as we shall soon have occasion to notice the discoveries of a very promising young naturalist in regard to them.

The next section treats of hydatids. Those described are,

1. *Tænia visceralis*, vesicula simplice inclusa, capitis tuberculis tribus, totidemque corporis articulis, basi vesicæ affixis. This was found by Treutler on the inner slightly inflamed peritonæum of a woman who had died of dropsy.

2. *Tænia muscularis* or *Finna humana*, capsa vaginal icartilaginea, vesicula caudata apicibus obtusis. These are found in the cellular substance among the muscles.

3. *Tænia pyriformis*, capite globoso, proboscide obtusa, papillis sugentibus quatuor multum prominentibus, hamulorum serie duplici, collo tenui, vesica in cauda pyriformi. Fischer found these in 1788, in the choroid plexus of a young man who died of ardent fever, but he knew nothing of his previous history.

4. *Tænia albopunctata*, velamento externo capsulari, capite sessili, papilla suctoria una, una tantum sex hamulorum corona, vesica in cauda rotunda. These were also found in the choroid plexus of a woman 28 years of age, who had become dropsical after an obstinate intermittent, by Treutler. In the last month of her life, she complained of great weight in the right side of the occiput, involuntary flow of tears, and frequent dimness of sight. She slept so soundly, that she was with difficulty awakened. Her hearing and speech daily diminished, and her memory left her entirely. She lost all power of voluntary motion, so that she could neither hold up her head, nor lift an arm or leg. To these were added convulsions and apoplectic attacks. At last she fell suddenly dead, when she seemed to be recovering, and was trying to walk about. The choroid plexus was turgid with blood, and varicose, and contained 14 hydatids on the right side, and two on the left.

5. *Polycephalus hominis*, corona uncorum simplici, capite impefrorato corporibusque pyriformibus. These were discovered by Meckel, in the brain, and the description given by Zeder

from Goeze's posthumous papers. Zeder himself afterwards found them in a girl. The case and dissection are interesting. A young woman, two years before her death, became affected with headache and giddiness. A year and an half afterwards, she recovered in some degree, and lived happily, but too freely for some weeks, until, when on the water, in an oppressively hot day, she was so violently attacked with headache and giddiness, that she fell down senseless. She complained of distention in the forehead, loss of memory and sight, and alternating headache and giddiness. These symptoms increased in violence. She could not bear the least light, or walk erect, but went straight forward, with her body bent, and struck herself against bodies in her way, like sheep affected with the staggers. At last she died and was opened. In the third ventricle, along with water, was found a particular kind of hydatid, containing a fluid resembling a solution of gum. In the passage to the aqueduct of Sylvius, and partly beneath the posterior end of the origin of the left optic nerve, there was a similar hydatid, larger than a hen's egg, to which three smaller ones adhered. In taking it out it burst, and, besides the fluid already described, it contained three other smaller ones. The tentorium cerebelli was also observed to be pushed very much up, and on taking out the cerebellum, there were found, in the fourth ventricle, besides water, several hydatids, which distended it so that it could have contained a hen's egg. In the bottom of this ventricle, on the right side, there was an indurated portion, the size of an almond, of a yellowish colour, and as if covered with matter. From this, other indurations, like catgut, extended in various directions. There were in all twelve hydatids of different sizes, besides half a pint of water.

The fifth section treats of the flat worms Fasciolæ or Ligulæ.

1 *Fasciola hepatica*, ovata plana, Bucholzii. Habitat in vesicula fellea. An original observation of Bucholz of Weimar, in which the gall-bladder was found filled with these worms, confirms the preceding accounts of Bidloo, Bauhin, and Pallas. The last of these authors says, that the bodies in which they occur are always dropsical, their omentum shrivelled, their kidneys unusually small, and their liver very large; the gall-ducts

enormously distended, the bile tasteless, thick and granular, and almost all the intestines beset with hydatids.

2. *Hexathyridium pinguicola*, labio distincto, retractili; capite in fine ostiis sex perforato, cauda curvata; ventre bifurco. The only example of this worm was found by Treutler in the fat of an ovarium.

3. *Hexathyridium venarum*, corpore elongato, depresso, lanceolato; capite labiato, infra poris sex obsito; collo indistincto; dorsi areola ex albo cuerulea; ventre poris duobus dissitis; cauda recta; margine nullo. This insect was extracted, according to Treutler, from a ruptured hole in the anterior tibial vein; but we must confess that we suspect some fallacy in the observation, as there evidently is in all the preceding histories of worms and insects found in the blood.

The infusory animals of the human body we pass altogether over, as having no practical interest.

The *Hirudo sanguisuga* and *H. Medicinalis*, are described as animals which occasionally fasten to the human body. The expedition to Egypt has furnished us with a still more dangerous species, which is swallowed with the water, and fixes on the inside of the œsophagus and stomach.

The worms which penetrate the skin and burrow under it, are the *Gordius aquaticus*, *Filaria Medinensis* and *Furia infernalis*. The first is supposed by our author and others to be a frequent cause of paronychia. To the history of the second, the preceding numbers of this Journal have furnished no inconsiderable addition. The existence of the third is highly problematical. It is doubted, both on account of the singularity of the effects ascribed to it, and the very few instances in which the worm has been discovered. On the contrary, Linnæus and Solander firmly believe they have seen it. The latter expresses himself thus: " Had I not seen the disease with my own eyes, and had the worm in my own hand, I could scarcely have believed what is related of it." The disease ascribed to this insect is a carbuncle or boil, which quickly becomes gangrenous, and terminates fatally, unless the most active remedies be immediately resorted to, or the part be extirpated by the knife, or actual cautery. A disease of this kind is endemic in various countries. It is called in Bothnia, *Skatt* or Shot, in Siberia *Morowaja*

Iasma or plague, in Tartary *Mohmo*, and in Franconia *Flugbrand*, or rapid gangrene. It is ascribed to the action of an external cause, and nominally to the furia infernalis, because it never attacks men or cattle in towns, but only in the fields; because it always commences in those parts of the body which are exposed to the air, in a single point, with an acute pain like the prick of a needle; because in the boil, a red or bluish point is seen like the bite of an insect; and lastly, because the progress of the disease is so easily checked, by destroying or removing the part. Still, however, the innumerable unsuccessful attempts to find any worm in the seat of the disease; the possibility of accounting for the disease independently of its existence; indeed, the similarity of some of its descriptions with a disease of sheep called the sickness in the blood by our Scots shepherds, and the target of some parts of England, and the possibility of mistaking the core or nucleus common in carbuncles for a worm, induce us to differ from our author, and to disbelieve its existence.

Of the remaining sections, containing the histories of singular and incredible cases, we shall say nothing, but refer the curious to the work itself. Upon the whole, we have been much satisfied with these volumes, and with the total want of pretension in their author. As mere compilations, they evince much industry and judgment, but they are frequently enriched with original observations of interest and importance. The plates, in the same manner, consist of good copies from the best originals, with the addition of some figures which have never been before published.

ORIGINAL PAPER.

FOR THE ECLECTIC REPERTORY.

Case of Necrosis.

BY DOCTOR SAMUEL DUFFIELD.

In the night of September 2, 1797, Benjamin Morrell, son of John Morrell, Esq. of Philadelphia, a remarkably healthy child, aged three years and two months, without any previous complaint whatever, was suddenly seized with a violent fever, attended with intense pain in the superior part of the left arm, about two inches below the junction of the os humeri with the scapula.

The morning following, I saw him, and found him labouring under a very high fever. His pulse quick; skin hot and dry; oppressed breathing; and pungent pain in the arm, as before mentioned. On examining the part affected there did not appear any change from a sound and natural state. No swelling, hardness or discolouration whatever; but the pain was intense. He was immediately bled pretty liberally; a purge administered, and warm emollient fomentations constantly applied to the part; and at night had an anodyne with the addition of two grains of calomel. He passed the night badly. The next morning, November 4th, his fever and other symptoms the same as the day preceding. He was bled again; took some cooling purging powders of jalap and nitre; the emollient applications continued; and the anodyne at night without calomel. November 5th, the symptoms exactly as the day before. He was bled a third time; the external applications continued, and he took two grains of calomel again at night with his anodyne as before. November 6th, his fever in no wise abated; his pulse frequent; skin hot and dry, and no abatement of the pain: nor did there yet appear any swelling, hardness, or discolouration of the part affected.

He was now become so weak, that it was not thought adviseable he should lose more blood. The fomentations were continued; but he did not take much medicine afterwards.

He continued nearly in the same state until about the 10th

or 11th day of his disease; when, suddenly, a large soft tumor arose on the part where the pain had constantly been, which, on the least pressure, exhibited so great a degree of fluctuation, as to evince that the matter contained was of a much thinner consistence than what usually occurs in common inflammatory abscesses. The tumor continued to increase in size and softness until November 17th, the 14th day of his disease, when it was opened, and discharged about a gill or more of a thin pus, between a straw and yellow colour; and in some parts tinged with blood. From the rapid increase of the tumor after its first appearance, and without the usual inflammatory symptoms of swelling, hardness, or change of colour, added to the appearance of the discharge when opened, I was fully convinced that the disease had arisen from the bone, and that the bone was affected; but he would not *then* permit me to examine it with the probe.

He was now reduced to a very weak state. His fever, though not so great as in the early part of his sickness, still continued. A pain also, apparently rheumatic, seized his left leg, so that he could scarcely move it; from which, with the affected state of his arm, he could lay only on one side. He had, for some time, scarcely taken any medicine, as before mentioned. Bark and elixir of vitriol were prescribed, but he could not be prevailed on to take them in such quantity as to expect much effect from them. After some time he suffered me to introduce a probe, when I found a considerably large surface of the bone bare, and scabrous; but he would not permit me to use the probe so freely as to ascertain how far the disease of the bone extended.

The part was dressed with dry lint, and covered with a plaster of basilicon; and sometimes, when the arm swelled and showed signs of more than usual inflammation, an emollient poultice was applied; and care was taken to keep a pretty tight compress, wet with brandy or vinegar, constantly round the arm above the elbow, with intention to prevent the matter from falling down and injuring that joint, as livid spots appeared on several places of the arm, which afterwards formed into small abscesses.

He continued in this state almost all winter; sweat much at

night; was very weak, and had but little appetite: Towards spring, however, he began to recover strength, his fever having greatly abated; and by the month of March, *and not before*, was able to stand on his feet.

This convalescent state increased daily, though not very rapidly; yet to such a degree, that by the beginning of July, he was able, but with some difficulty, to be removed in a carriage with the family near thirty miles to their country residence opposite to Trenton, where they usually passed the summer; consequently I did not see him again until the fall, when the family returned to the city.

It may not be improper to remark here, that when he went into the country in July, notwithstanding I could discover that the disease of the bone had extended considerably downwards, there did not *then* appear to me any reason to suspect that the head of the os humeri, or capsular ligament surrounding it, were affected, which afterwards was found to be the case.

On being informed in November that he had returned to the city, I called to see him, and was not a little surprised to find the head of the os humeri, and full two inches of the bone, standing out, and quite detached from the scapula and fleshy part of the arm; at the same time he could use his hand, and had such a degree of strength in the arm, as to afford reason to believe that nature was about providing a new bone to replace the other, which was now becoming not only useless, but a nuisance, as it prevented him from lying on that side.

His mother had now become his surgeon, and continued the simple dressings of lint and basilicon twice a day as before. Livid spots occasionally appeared along the arm to about two inches above the elbow; and the opening in the flesh gradually increased downwards, the bone becoming more and more loose and prominent until the month of June following (1799) when he went again into the country, where he remained until the fall. Nothing new occurred in his case during the summer. The opening in the arm increased; more of the bone gradually appeared, and he had become quite strong and healthy when he returned to the city in November. In this state, with three or four inches of the os humeri, *including the head complete*, standing out, quite detached from the scapula and fleshy part

of the arm, he could nevertheless take up a small chair with that hand (which he called his little hand, it not having grown in proportion quite equal with the other) and carry it about with ease; and would frequently, with a degree of exultation, give his father or brothers a smart side stroke with that elbow, to shew how strong his arm had become. He passed the following winter well, the case gradually progressing; and in June following went again into the country with the family.

Whilst in the country, on the 9th of July, he was seized with a severe fever, which continued until the 12th; when Dr. Belville being called from Trenton to visit him, finding the bone perfectly loose, drew it out without any difficulty; after which the fever soon subsided, and the part healed rapidly, leaving only a deep depression on the eschar which formed on the place from which the diseased bone had been removed.

It is worthy of remark, so rapid was his recovery, that on the 37th day from the extraction of the bone, he rowed a batteau or small boat across the Delaware near Trenton, where the river is about a quarter of a mile wide, *himself*, while his brother sat in the boat with him, but he would not allow him to give him any assistance.

Several members of the College of Physicians can remember how well he could use his arm, when I brought him to their meeting. It has since considerably improved in strength. He can now raise his hand over his head, and put it behind his back with ease, and put on and off his clothes without any inconvenience; and that arm appears to be equally useful with the other, except that he cannot raise the os humeri to an horizontal position quite equal with the other, and it is an inch and an half shorter, being now (in his eighth year, 1801) from his shoulder to the elbow seven inches and an half. The bone which was extracted was full five inches in length; and the sound part which remained connected with the elbow was supposed to be about two inches. He has the use of his elbow complete.

If any useful practical inferences may be deduced from this crude statement of an important case, perhaps a principal one is to guard against being too officious on such occasions, and to trust a good deal to nature. An enterprizing and unskilful

surgeon in this case might have enhanced his fame by an amputation, though the patient would have lost his arm by it. I make this remark, as the family were frequently importuned by their friends, to have the arm laid open in an early stage of the complaint: which, had it been done, probably might have prepared the way for the before mentioned operation.

September, 1813.

MEDICAL INTELLIGENCE.

HUMBOLDT'S *Political State of New Spain, and* HUMBOLDT *and* BONPLAND'S *Plantæ Equinoctiales.*

[From the Edinburgh Medical and Surgical Journal, for January, 1812.]

THE arrival of a second volume of the splendid work of these indefatigable travellers, enables us to lay before our readers some curious information respecting the fever which reigns epidemically on the eastern coast of New Spain.

Vera Cruz is considered as the chief seat of the *vomito*, which is certainly the same disease with the yellow fever that has afflicted the inhabitants of the United States of America since 1793. Clavigero and other writers affirm, that it occurred for the first time in 1725; but M. Humboldt is of opinion, that yellow fever has occurred, sporadically, whenever persons born in a cold climate have been exposed, in the torrid zone, to air loaded with *miasmata*. In the sixteenth and seventeenth centuries, the mortality was probably much less than afterwards: 1st, Because the tropical part of America was only visited by the Portuguese and Spaniards, whose constitutions are less hurt by great heat than the inhabitants of more northern countries; 2d, The early colonists of the West Indies were not collected into such populous towns; 3d, Because, after the discovery of the American continent, the Spaniards were less attracted by commerce to the warm and humid shores, and preferred the more temperate elevated plains of the interior. Panama and Nombre de Dios were at first the only ports in which, on certain occasions, there was a considerable concourse of strangers, and, as early as 1535 the former was a dangerous residence for Euro-

peans, and the latter was abandoned in 1584. We must not confound the period when a disease was first described with the date of its first appearance. The most ancient description of yellow fever, is by John Ferreyra de Rosa, a Portuguese physician, who observed the epidemic which prevailed at Olinda in the Brazils from 1687 to 1694, shortly after the Portuguese army had conquered Fernambuco. In 1691 it appeared in Barbadoes, and was called Kendall's fever, but there was no proof of its having been imported from Fernambuco. Ulloa reports, from the information of the natives, that the *vomito prieto* was not known at St. Marthe and Carthagena before 1729-30, or at Guayaquil before 1740.

The black vomit has never yet been observed on the west coast of New Spain. The inhabitants of the sea shore, from the mouth of the Papagallo to Saint Blas, are subject to gastric, which often degenerates into adynamic fever; and it may be stated, that a bilious constitution reigns almost continually in these plains, which, though arid and burning, are intersected by marshes, the resort of the crocodile. The yellow fever, and we request the attention of our readers to the fact, is still unknown even at Acapulco, which Humboldt describes as one of the most unhealthy situations of the New World, where the heat is more oppressive and the air more stagnating than at Vera Cruz; where the inhabitants, for a great part of the year, do not see the sun, except through a stratum of olive-coloured vapour, not affecting the hygrometer; and where heaps of fish putrefying, exhale vapours which are considered as the chief cause of the bilious putrid fevers which reign upon that coast, and which, with cholera morbus, carry off numbers of the Mexicans, who descend from the high table-lands to purchase goods on the arrival of the galleons. So favourable does the situation of Acapulco appear to Humboldt for the development of yellow fever, that he attempts to account for its absence. "Perhaps, if this port, instead of being frequented by ships from Manilla, Guayaquil, and other places of the torrid zone, received ships from Chili and the north-west coast of America; if it were visited at the same time by a greater number of Europeans or of the highland Mexicans, the bilious fever would soon degenerate into yellow fever, and the germ of this last disease would develop itself in a still more

fatal manner than at Vera Cruz." Our readers will porbably recollect Dr. Mitchell's theory of *septon*, and his illustration of it, by ascribing the healthiness of all limestone countries to the absorption of the septic acid. Of the falsity of this hypothesis, Gibraltar has furnished an incontrovertible proof, and the great lime-kilns of Acapulco afford another; still, however, such is the political influence of Dr. Mitchell's theory, that on Humboldt's arrival at Philadelphia from the West Indies, the hatchways were gravely painted with lime-water to absorb the *septon* which was supposed to be aboard the vessel;—the poor Spanish sailors, in their ignorance, naturally enough concluded, that it was some magical operation, from which such a disproportionate effect as the destruction of contagion was expected.

From the uniformity of the heat during the year at Acapulco, Humboldt dreads, that if ever the yellow fever is developed there, it will continue during the whole year, as in other situations where the temperature varies only two or three degrees during the year.

It is a mistake that the yellow fever never appears in the southern hemisphere. It, in fact, first attacked a number of Europeans at Olinda, in the Brazils; it prevailed at Guayaquil in 1740; and in the beginning of this century, at Monte Video, so celebrated for the salubrity of its climate. During the last fifty years, the yellow fever has not appeared upon the coast of the Pacific Ocean, except at Panama, and there, as at Callao, the commencement of a great epidemic is often marked by the arrival of some ships from Chili; not that they imported the disease from a country where it never existed, but because its inhabitants, coming from the healthiest country in the world, experience the same fatal effects of a sultry air, loaded with putrid emanations, as the inhabitants of the north.

On the coast of Mexico, an intimate connection is observed between the progress of disease and the temperature of the air. At Vera Cruz there are only two seasons; that of the north-winds, which blow from the autumnal to the vernal equinox, and of the south-east, which blows pretty regularly from March to September. The *vomito* does not commence, generally, till the medium heat is 75° Fahr. and is, therefore, seldom seen in December, January, and February; and although May is warm-

er than September and October, its ravages are most dreadful in these latter months, because a certain duration seems necessary to develop its full force. Thus, when it has been very violent in summer, it continues more or less during winter; but when it has been mild in summer, it ceases altogether; also, the rain which lasts from June to September, cannot be without influence. The commencement and termination of the rainy season are most to be dreaded.

M. Humboldt is of opinion, that the *vomito* is not *naturally* contagious, but that it is not inconsistent with other pathological phenomena for it to become so, from the influence of climate and seasons, the accumulation of sick, and individual susceptibility. Thus between the tropics, *e. g.* at Vera Cruz, the *vomito* is universally allowed to be *not* contagious; while, in the more temperate climate of Europe, its contagious nature was as indisputably proved, by the escape of individuals in the very focus of the disease, who secluded themselves; and in the intermediate climate of North America, its contagious nature has always been the subject of violent controversy. In tropical situations, a second attack of yellow fever is rare, at Vera Cruz unknown, but in the United States it is not uncommon.

Near Vera Cruz, the *vomito* never occurs higher up than 3080 feet above the level of the sea, which is exactly the limit below which the Mexican oaks cease to grow.

It is remarkable, that persons born and brought up in Vera Cruz, are not *there* subject to the disease. The same is true at Havannah, with regard to its inhabitants; and yet the natives of Havannah are sometimes attacked with yellow fever when they visit Vera Cruz, in August or September; while, on the contrary, natives of Vera Cruz have died of yellow fever at Havannah, Jamaica, and the United States.

It is also remarkable, that the natives of equinoctial countries, such as Vera Cruz and Havannah, are not susceptible of yellow fever in their own country, while, in the more temperate climates of North America, and Old Spain, the natives suffer equally with strangers. The whites and *metis*, who inhabit the elevated interior of Mexico, especially the muleteers and recruits, suffer more from yellow fever than strangers who arrive by sea, probably from experiencing a more sudden change of temperature.

In the most sickly season, the shortest stay in Vera Cruz is sufficient to excite the disease in strangers. Inhabitants of the city of Mexico, going to Europe, generally remain at Xalapa until the very moment of the vessel sailing, set out in the middle of the night, and are carried through Vera Cruz in a litter to the boat waiting for them at the Mole, and yet these often die of yellow fever in a few days; and in like manner Europeans, who, on their arrival, find litters prepared to carry them up to Perote, do not always escape.

At Vera Cruz, the yellow fever generally lasts longer than six or seven days, and deaths in the course of 30 or 40 hours are very rare, whereas in Old Spain, cases have terminated fatally in 6 or 7 hours. The mortality is always greatest, when several ships of war, and many merchant vessels arrive at the same time in summer: thus the cruel epidemic of 1794, followed upon the arrival of three men of war.

Although the *vomito* at first indicates an asthenic diathesis, blood-letting is considered dangerous at Vera Cruz, the passage from synocha to typhus is so rapid. In the commencement of the disease, minoratives, bathing, iced water, sorbets, and other debilitating remedies are preferred; but when, to speak in the language of Brown, whose system, it appears, has excited more enthusiasm in Mexico, that in any part of Europe, the indirect debility manifests itself, the most powerful stimuli are given with great success; such as more than an hundred drops of sulphuric ether, and 60 or 70 drops of laudanum, every hour. Cinchona has not been so successful in Vera Cruz, as in the West Indies snd Spain, and the mercurial treatment, though frequently tried, has been very generally abandoned. Frictions with olive oil have been more successful.

The yellow fever appears at distant but irregular periods. The epidemic of 1762, is the first on record, which, however, does not go back more than half a century. It continued to appear every year until 1775, after which it did not return till 1794, although during all the intermediate years, the concourse of foreign sailors was very great. Since 1794, it has prevailed whenever the north trade-wind ceases to blow. Meteorological observations have, as yet, thrown no light upon these periodical epidemics.

Angustura. Bonplandia trifoliata.

We are always pleased, when the discovery of the source of any articles of the Materia Medica, lessens our ignorance of the instruments of our art. The angustura bark, since its introduction into medicine, has given rise to many false conjectures. It has been ascribed to the brucea ferruginea, which grows in Abyssinia, and to the magnolia glauca, which is not found in any part of South America. Humbolt and Bonpland were lucky enough to meet with it at St. Thomas, in New Guayana, in June 1800. They perceived that it belonged to an undescribed genus; and having sent a specimen of it to Professor Willdenow of Berlin, he described it in the Memoirs of the Berlin Academy for 1802, and named it in honour of its discoverer, Bonplandia; which name has been retained by our travellers in their magnificent work, and may therefore be considered as established. From the *Plantæ Equinoctiales*, Vol. II. p. 59, we quote the following description:

Bonplandia. Pentandria monogynia, *Lin.* Ordo naturalis, Quassia, *Juss.*

Character genericus.

(Willd. Monogr. in Act. Acad. Berolin. ann. 1802.—p. 24.)

Calyx: perianthium monophyllum, campanulatum, persistens, tomentosum, laciniis ovatis, obtusis. Corolla quinquepetala, tubulosa, petalis lanceolatis, obtusis, coriaceis, extus tomentosis, margine cohærentibus, et corollam monopetalam, pentagonam mentientibus. Nectarium duplex; glandulæ quinque oblongæ, obtusæ; et squamæ totidem truncatæ pubescentes, glandulis dictis cinctæ, ad basim germinis. Stamina: filamenta quinque lineari-lanceolata, basi parum dilatata, infra medium petalorum inserta; antheræ lineares, versatiles. Pistillum: germina quinque coalita; stylus filiformis, staminibus brevior; stigmata quinque oblonga, obtusa, crassa, conniventia. Pericarpium: capsulæ quinque, coalitæ, uniloculares, monospermæ, bivalves. Semen ovatum."

The Bonplandia is a native of South America, and frequent in the woods near Carouy, and Alta Gracia. It grows to the height of from sixty to eighty feet, of an elegant and majestic form. Its trunk is straight and cylindrical. The bark is only one or two

lines in thickness, and is sometimes cracked externally. The wood is of a clear yellow colour, dense and susceptible of a polish, like boxwood. The branches are alternate, the lower horizontal, the upper more upright. The bark of the younger branches is of a fine green colour, dotted with greyish tubercles. The leaves are evergreen, alternate, composed of three leafits, one or two feet in length, the middle one being one-sixth longer then the lateral ones, supported on a common foot-stalk ten or eleven inches long. The leaves, when fresh, exhale an extremely agreeable aromatic odour. The corymbus is torminal, about fourteen or eighteen inches long, having a foot-stalk of nearly the same length with that of the leaves, and composed of alternate twigs, bearing each from three to six flowers.

In its botanical character, the Bonplandia approaches most nearly to quassia, but is sufficiectly distinguished by the insertion of its stamina into the petals, and by the petals cohering at their basis, resembling a monopetalous corolla.

The name Angustura bark, is derived from the Spanish denomination *cascarilla* or *corteza del Angostura*. From the very considerable contraction of the Orinoco near Guayana, the town of St. Thomas is vulgarly called *La Angostura*, the straits, and therefore it is not correct to write *Cortex Augusturæ* or *Augustæ*, as has been done, under the false supposition that the bark came from the town of St. Augustin in Florida.

The Bonplandia trifoliata, which has the form of the cacao tree, seems to belong, like the Myristica otoba, Bertholetia and Ceroxylon, to those groups of valuable plants, which nature has confined within a very small extent of country. It is chiefly found to the south of the lower Orinoco, in the missions of Carony, inhabited by the Caribbs, 28 leagues east from Angostura. It is frequent in the fine forests around *Villa de Upatu*, *Alta Gracia*, and *Copapui*, between the rivers Carony and Upatu, but five or six leagues distant from the right bank of the Carony. The bark is an article of commerce at Saint Thomas, Carony, and Trinidad. Bonpland also found it among the plants of the gulf of Santa Fe, between Cumana and New Barcelona.

The Catalonian capuchins who possess the missions of Carony, prepare with great care an extract of angustura bark, which they distribute to the convents of Catalonia.

The Bonplandia is unfortunately indicated on the *tableau* belonging to Humboldt's geography of plants, under the title of *Cusparia Febrifuga*, which has led the London college into a false nomenclature. It must not be confounded with the Cuspa or false cinchona of Cumana, which has alternate leaves.

As giving a general view of the subject of an interesting physiological work, recently translated and now on the point of publication, we insert the following " Extract of the Report made by the Commissioners appointed by the Imperial Institute of France, to review Dr. Le Gallois's Experiments on the Principle of Life, and particularly on the Principle of the Motions of the Heart, and on the Seat of this Principle."

These experiments appear to us completely to establish the inferences drawn by the author, and with which he concludes his memoir; we shall confine ourselves to such of the principal points, as we consider demonstrated.

1. That the principle of the inspiratory motions resides near where the medulla oblongata gives rise to the nerves of the eighth pair.

2. That the principle that animates every part of the body, has its seat in that portion of the spinal marrow, whence the nerves of such part derive their origin.

3. That it is likewise from the spinal marrow, that the heart receives the principle of its life, and of its powers, not from any circumscribed portion, but from the whole of the spinal marrow.

4. That the great sympathetic arises from the spinal marrow, and that the peculiar character of this nerve, is to subject every part to which it is distributed, to the immediate influence of the nervous power.

These results readily solve all the difficulties which have arisen since the days of Haller, respecting the causes of the motions of the heart. It will be recollected that the principal points to be explained, are, 1. Why the heart is supplied with nerves. 2. Why it is subjected to the dominion of the passions. 3. Why it is independent of the will. 4. Why the circulation

continues in animals born without heads, and in those that have been decapitated. It will be recollected also that hitherto no explanation has reconciled these points, unless by the aid of hypotheses, which have rather created new difficulties. But now it is readily understood why the heart is supplied with nerves, and why it appears so eminently subjected to the dominion of the passions, since it is animated by the whole of the spinal marrow. It is independent of the will, because the will exercises no control over the organs which are under the influence of the whole of the nervous power. Finally the circulation continues in animals born without heads, and in those that have been decapitated, because the motions of the heart do not depend upon the brain, at least not primarily.

We must remark that this last point, on which Dr. Le Gallois has diffused so much light, presents nothing but confusion and error in the authors of the old and new Hallerian school. No one has distinguished the motions of the heart which take place after decapitation, from those observed after the excision of that organ, or after the destruction of the spinal marrow: They thought that both were equally capable of maintaining the circulation. But there is an essential difference between these motions. The latter have not the power to maintain the circulation; they resemble the feeble motions, which may be excited in other muscles, for some time after death. Dr. Le Gallois designates them by the name of motions from irritability (*mouvemens d'irritabilité*), without attaching any other meaning to the term, than simply to express the phenomena which occur in the dead body (*phenomenes cadaveriques*).

On the Solvent Powers of Milk. By Dr. Cassils.

Amongst the various solvents of camphor, and those substances called gum-resins, there is one which I have not found mentioned by any writer on chemistry or the Materia Medica that I am acquainted with, namely, milk. By triturating camphor with milk it is nearly as readily dissolved as with rectified spirit, and this property I apprehend does not altogether depend upon the cream, constituting one of its component parts, for

skimmed milk, whey, and the coagulable matter obtained by spontaneous separation, are more or less solvents of camphor. The latter, when dried, and made into a pulp with distilled water, dissolves it in considerable quantity, and forms a beautiful white solution. As the above fact is not generally known, I beg leave to suggest, that it may be of considerable use in performing some pharmaceutical operations, and particularly where economy is an object, as in infirmaries and other charitable institutions; for instance, the emulsio camphorata may be very readily prepared in this manner.

R. Camphor. ʒss.
Lactis vaccini ʒiv. Solve, et adde
Aq. fontanæ ℥viiss.

In this preparation none of the camphor is lost by precipitation. Again, in preparing the tinctura opii camphorata, I have substituted the milk for proof spirit, and find it very useful in coughs, when I think an opiate necessary; nay, it is perhaps a more safe medicine, for the spirit, that forms a principle article in the common paregoric elixir, is more frequently calculated to excite coughing than to remove it.

Farther, when the external application of camphor is wished for, without the addition of alcohol, it may be very easily applied in the following embrocation, which may be called lac camphoratum cum sapone.

R. Camphor. ℥j.
Lactis vaccini ℥iv.
Saponis mollis ℥j. M.

Lastly, cream forms an elegant liniment with camphor, which is not soluble in water.

From this property of milk in dissolving camphor I was led to try its effects on the gum-resins, and found that it dissolved assafœtida, gum ammoniac, guaiacum and myrrh, sooner than water, and I think it a better vehicle for the administration of these remedies, as it not only forms a more perfect solution, but renders their taste less unpleasant. Milk also dissolves rosin and pitch, balsam of Peru and Tolu in small quanties. By the prosecution of these experiments, I have no doubt but some of your ingenious correspondents may be able to throw farther light on the above interesting facts.

Edin. Med. and Sur. Jour.

Solution of Sulphate of Zinc, recommended in Scrofulous Ulcers.
By Dr. Cassils.

Notwithstanding the number of remedies recommended by practical writers for the cure of scrofulous ulcers, unconnected with caries of the bones, it is to be feared, that by far the major part are useless, and that not one is to be entirely depended upon; but after some experience, I beg leave to call the attention of my professional brethren to an external application, which I flatter myself is justly entitled to their confidence, for neither myself, nor those of my friends who are acquainted with it, have ever been disappointed. It is nothing else than a strong, sometimes a saturated solution of the sulphate of zinc in water. I order linen rags to be dipt into as strong a solution as the patient can bear, and applied to the sore, two or three times a-day. If it causes considerable smarting, (which is often the case at first,) I desire the patient to moisten the rag over the part affected with cold water, till the pain is rendered more tolerable, and by degrees to apply the strong solution, as directed, while the disease remains. Sometimes a slight discharge of blood takes place, and at other times a few pimples appear round the margin of the ulcer; but generally speaking, in a few days, an healthy action of all the diseased part takes place, genuine pus is discharged, sound granulations are formed, and in a few weeks cicatrization is completed.

In the worst cases that have come under my care, no internal remedies were administered, so that the whole efficacy of curing scrofulous sores, rests with the strong solution of sulphate of zinc; and I cannot avoid saying, that the above species of ulcer will be no longer considered an opprobium to the healing art. For the knowledge of this invaluable remedy, I am indebted to Mr. Somerville, an excellent surgeon to the General Infirmary, Stafford.

Since I have written the above, I have seen the second edition of Mr. Hey's Practical Surgery, and am happy to add, that my experience of the good effects of this medicine are corroborated by that gentleman. He, indeed, only recommends a weak solution of this metallic salt, viz ʒss. in a pint of water, to which is added, an ounce of spirit of rosemary, and a dram

of spirit of lavender; and, even in that diluted state, it is found to possess very active powers.

Edin. Med. and Sur. Jour.

Mr. J. H. Wishart is preparing for the press, a translation of Scarpa's Treatise on Hernia, from the original Italian.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Officers Elected at the Annual Meeting, 1813.

PRESIDENT.

Doctor Adam Kuhn.

VICE-PRESIDENT.

Doctor Thomas Parke.

CENSORS.

Doctor Caspar Wistar.
Samuel P. Griffitts,
William Currie,
Thomas T. Hewson,

TREASURER.

Doctor Thomas C. James.

SECRETARY.

Doctor Joseph Parrish.

UNIVERSITY OF PENNSYLVANIA.

Doctor Benjamin Smith Barton, appointed Professor of the Institutes and Practice of Physic, and of Clinical Medicine, in the place of Doctor Benjamin Rush, deceased.

Doctor Nathaniel Chapman, appointed Professor of Materia Medica, in the place of Doctor Barton.

DIED.

In London, about the middle of May, 1813, Doctor Anthony Fothergill.

Near Philadelphia, Doctor James Proudfit, on the 8th day of August, 1813, aged 43 years.

Alexander Wilson, an eminent Ornithologist, August 22, 1813, at Philadelphia.

Thomas Dobson has in Press,

The Surgical Works of P. I. Desault, Surgeon in Chief of the Great Hospital of Humanity at Paris. By Xavier Bichat, his pupil, and adjunct Physician of the same Hospital. Translated from the original by Edward Darrell Smith, M. D. Professor of Chemistry in the South Carolina College.

Elements of Physiology; by A. Richerand, Professor of the Faculty of Medicine of Paris, Surgeon in Chief of the Hospital of St. Louis, member of the Academy of Vienna, Petersburgh, Madrid, Turin, &c. Translated from the French, by G. J. M. De Lys, M. D. With notes, by N. Chapman, M. D. Professor of the Materia Medica in the University of Pennsylvania. From the fifth edition, revised, corrected, and enlarged.

A Translation of Dr. Swediaur's new work on the Venereal Disease.

Moses Thomas has in Press,

Experiments on the Principle of Life, and particularly on the principle of the motions of the heart, and on the seat of this principle: including the report made to the first class of the institute upon the experiments relative to the motions of the heart. By M. Le Gallois, adjunct member of the Society of the Professors of the Faculty of Medicine of Paris, member of the Philomatic Society, Physician to the Board of Benevolence of the Pantheon-ward. Translated by N. C. and J. G. Nancrede, M. D.

Anthony Finley, Philadelphia; and Bradford and Read, Boston, have in Press,

An Introduction to Physiological and Systematical Botany. By James Edward Smith, M.D. F.R.S. &c. &c. President of the Linnæan Society. First American edition, with such additional illustrations from native plants, as may be necessary to facilitate its application to the Botany of this country. With fifteen engravings.

A. Finley, has just published, An Essay, Medical, Philosophical and Chemical on Drunkenness, and its effects on the Human Body, &c. By Thomas Trotter, M. D. &c. &c.

Kimber and Conrad, and Edward Parker, will shortly publish,

Elements of Surgery for the use of Students, by John Syng Dorsey, M. D. Adjunct Professor of Surgery in the University of Pennsylvania, one of the Surgeons of the Pennsylvania Hospital, &c. 2 vols. octavo.

Benjamin and Thomas Kite, and other booksellers, will shortly publish,

The Principles of Midwifery, including the Diseases of Women and Children; by John Burns, Lecturer on Midwifery, and member of the Faculty of Physicians and Surgeons, Glasgow. The third American from the second London edition, with additions and improvements, by Thomas C. James, M. D. Professor of Midwifery in the University of Pennsylvania.

Kimber and Conrad are preparing to publish,

A second edition of Accum's Chemistry, in two volumes, with notes and additions, by Thomas Cooper, Professor of Chemistry, &c. &c. in Dickenson College, Carlisle.

RECENT FOREIGN PUBLICATIONS.

Botany.

Monograph of the British Jungermanniæ; by W. J. Hooker. No. 10. 4to and folio.

Outlines of Botany, or an easy Introduction to that Science; by Dr. Thornton.

Medicine, Anatomy, &c.

Monro's Outlines of the Anatomy of the Human Body, in its sound and diseased state. 3 vols. and a volume of plates.

The Edinburgh Medical and Surgical Journal, No. 34.

Novum Nosologiæ Methodicæ Systema; auctore F. Swediaur, M. D. 2 vols. 8vo.

Medical Observations and Inquiries, by a Society of Physicians in London. vol. 4, 8vo.

Morbid Anatomy of the Liver, by W. Farre. Part I. Imp. 4to.

Epitome of Modern Surgery, by Samuel Cooper, 8vo.

Observations on the Nature and Cure of Dropsies, by John Blackhall, M. D. 8vo.

Medico-Chirurgical Transactions, published by the Medical and Chirurgical Society of London, vol. 3. 8vo.

A comprehensive View of the Small-pox, Cow-pox, and Chicken-pox, by J. Saunders, M. D.

A Practical Treatise on Hœmoptysis, or Spitting of Blood; showing the safety and efficacy of emetics, and the fatal effects of blood-letting in the treatment of that disease, with cases, by G. Rees, M. D.

An Account of the Plague which raged at Moscow in 1771. Translated from the French, with notes. 8vo.

History of James Mitchell, a boy born blind and deaf, by James Wardrop, F.R.S. Edin.

Practical Treatise on Cataract, by John Stevenson.

Companion to the London Dissector.

A letter on the State and Conditions of Apothecaries, with proposals for making their offices more respectable and more beneficial to the public.

A Grammar of Medicine in all its Branches, for the use of students and youths designed for the medical profession, with plates, questions, &c.

Natural Philosophy.

The Seat of Vision, determined by the Discovery of a new Function in that Organ. By Andrew Horne.

Natural History.

British Ornithology: being the history, with an accurately coloured representation of every known Species of British Birds, &c. &c. by George Graves, F.L.S. vol. 1 and 2, royal octavo.

Natural History of the Quadrupeds, Birds, &c. of Orkney and Shetland, by the Rev. G. Low. 4to.